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THE UNIVERSITY OF ALBERTA

THE DIFFERING USE OF INSTALMENT CREDIT BY LIFE

CYCLE CATEGORIES AND ITS IMPLICATIONS

by

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The undersigned certify that they have read, and
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a thesis entitled THE DIFFERING USE OF INSTALMENT CREDIT
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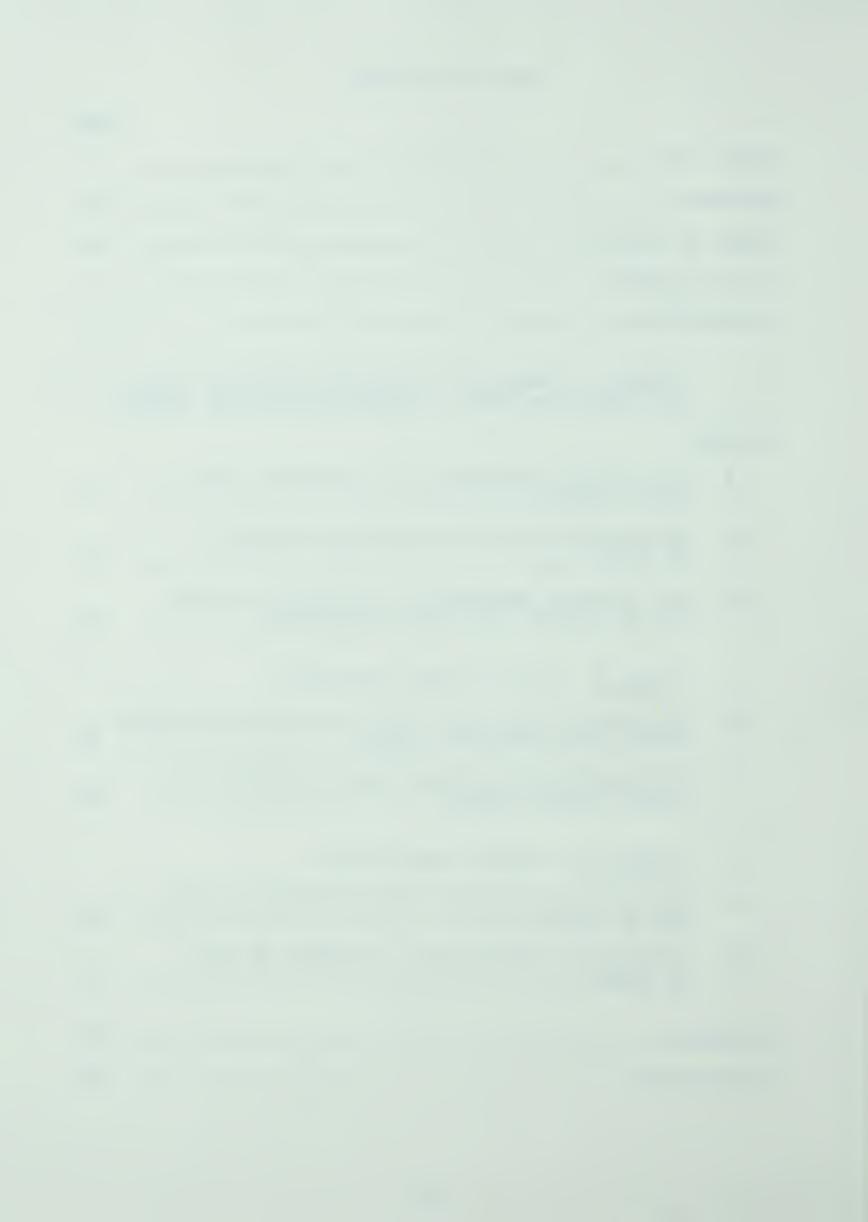ments for the degree of Master of Arts.

ABSTRACT

Since the use of instalment credit has reached a
significant level in the western economics a knowledge of
which spending units use such credit is desirable for a
number of reasons. Perhaps the most significant of these
is the enabling of authorities to identify variables through
which they can control the demand for credit and at the same
time informing them which sections of the community are
likely to be affected by these controls. Also, this know-
ledge, when used in conjunction with information on the
growth rates of family classes, permits estimates of the
future demand for credit to be made.

In this thesis we examine the reasons for the differ-
ing use of credit by spending units falling in various life-
cycle categories, and also the implications our findings
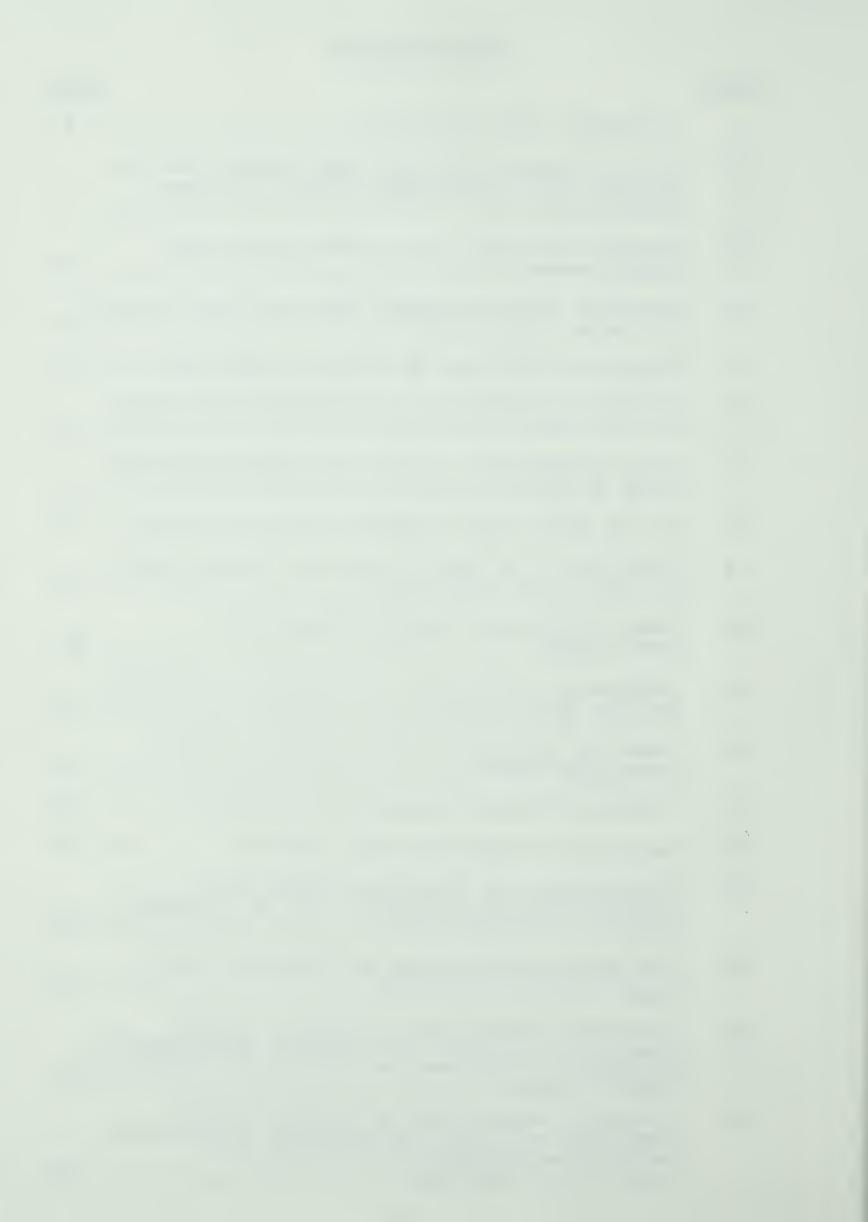may have on policy and the methods for estimating credit
demand.

TABLE OF CONTENTS

LIST OF TABLES

INTRODUCTION

An instalment credit (or hire-purchase) transaction may be defined as a debt which is liquidated in a piecemeal fashion over time, by means of successive payments made on different dates. The significance of this type of credit in the financial structure of an economy is that it provides a convenient source of medium term finance on fixed terms for the purchase of goods or equipment, with the commodity, itself, as security for the loan. These particular features of such loans allow wage-earners to increase their standard of living, and small business-men to expand their size of plant operation at an earlier date than would be otherwise possible.

Although instalment credit had been used since the 1880's in the U.S. and the U.K., it is only since the Second World War that its use has reached a significant level in the western economies. Some indication of the growth experienced by the U.S., Canada, and Australia in the use of instalment credit since the war is given in Table 1. From the table it is evident that the greatest expansion in the use of credit by the con-sumers took place prior to 1956, especially in the late forties and early fifties when the demand for durables was relatively high. Using the U.S. as an example to indicate how significant the use of instalment credit has become, we find that for the year 1965 the following facts held.

TABLE 1

INSTALMENT DEBT OUTSTANDING

	U.S.A.	(a)	CANADA	(b)	AUSTRALIA	(c)
Year	Level of Instalment Debt	Annual % Rate of Increase in Debt	Level of Instalment Debt	Annual % Rate of Increase in Debt	Level of Instalment Debt	Annual % Rate of Increase in Debt
	$ Mill	%	$ Mill	%	$ Mill	%
1949	11,590	29.23	256	41.5	67.4	54.58
1950	14,703	26.85	347	34.77	105.4	54.59
1951	15,294	4.01	283	18.44	139.4	33.39
1952	19,403	21.17	536	89.75	156.4	12.19
1953	23,005	18.56	702	30.97	176.0	12.53
1954	23,568	2.44	704	.28	258.0	46.59
1955	28,958	2.28	835	18.60	349.8	35.58
1956	31,827	9.01	1,017	21.79	403.2	15.83
1957	33,867	6.40	1,064	4.41	443.4	9.97
1958	33,642	-.66	1,053	-1.04	561.2	26.56
1959	39,245	16.65	1,118	6.17	673.0	19.92
1960	42,832	9.14	1,140	1.92	806.6	19.85
1961	43,527	1.62	1,061	-6.92	794.8	-1.46
1962	48,034	10.35	1,122	5.74	746.8	-6.03
1963	54,158	12.74	1,202	6.65	819.0	9.66
1964	60,548	11.79	1,364	13.47	937.0	14.40
1965	68,565	13.24	1,490	8.45	1,050.4	12.10

SOURCE: (a) Federal Reserve Bulletin, (b) Bank of Canada - Statistical Summary Supplement 1965 (c) Commonwealth Statistician.

-2-

Firstly, over 75 per cent of the consumer credit granted during that year was of the instalment type. Secondly, at the end of the year approximately 50 per cent of the spending units making up the economy owed some instalment debt, and thirdly, the actual level of instalment debt outstanding was equal to 14.6 per cent of the personal disposable income earned during the year .

From the fact that the use of instalment credit has reached such a significant level in these economies, it is desirable, for policy and analytical reasons, to have some knowledge of the way in which such credit effects the operations of an economy. Therefore, this thesis is concerned primarily with an examination of the implications arising from the finding that there is a distinct difference in the number of units who use credit in each of the major life cycle categories.

The text of the paper is broken down into three major parts.

Part I explains why we would expect the use of credit by the various life cycle units to be different. The way in which this is done is to discuss, in the first chapter, the main factors causing spending units to use credit. The second chapter examines briefly, using cross sectional data, the general characteristics of the units making up each of the life cycle groupings. Finally, in chapter III on the basis of information obtained from chapters I and II, an explanation

is put forward to justify our expectation of a significant
difference in the percentage of units who use credit in each
of the categories.

Part II examines the implications that findings from
Part I could have on the methods that should be used to explain
the demand for credit, both by the individual unit and from
the economy as a whole. The fourth chapter deals with the
implications regarding the relative strength of variables in
inducing a unit to use credit at different stages during it's
life, and also points out the dangers of using total population
data to explain the demand behavior of individual units. The
fifth chapter examines, in particular, the implications of
the findings on the methods which should be used to estimate
the future demand for credit.

In Part III an examination is made of some of the more
important policy implications arising from the findings obtained
in Part I. The sixth chapter analyses the likely effects, on
the demand for credit, of policy measures designed to influence
the cost of credit or alter the repayment terms of contracts,
with the predicted effects being tested against the results
of an empirical study. The seventh and final chapter examines,
on the basis of the findings from Part I, the level and growth
rate of instalment debt that an economy is able to maintain
without generating undesirable consequences.

PART I

REASONS FOR EXPECTING DIFFERING USAGE OF
CREDIT BY UNITS IN VARIOUS LIFE - CYCLE STAGES

In this section, the aim is to determine reasons for expecting units in various life cycle stages to differ in their use of credit, by first examining the major factors causing any unit to use credit, and then by investigating the general characteristics of spending units in these stages. The information thus obtained enables us to determine the relative strength of pressures acting on units in different stages, and hence provides reasons for expecting this difference (in usage of credit), which is in turn tested against cross-sectional data.

CHAPTER I

THE FACTORS RESPONSIBLE FOR SPENDING UNITS USING CREDIT

The first point which must be stressed is that the original stimulus behind the use of instalment credit by a spending unit comes from the desire or demand for durable goods. The extent to which an individual uses credit to finance his demand for durables depends on a variety of factors, the most important of which is the financial necessity of doing so, when the cost of durables demanded at any given time is greater than the funds available to the unit. This circumstance may occur for an individual for obvious reasons, such as low income, low holdings of financial reserves, and high current living expenses arising, for example, from an increasing number of children. In connection with this financial stimulus to the use of credit, it is reasonable to predict that before mortgaging its future earnings, the spending unit must be optimistic about the future. Support for this is provided by Table 2 which shows that a greater percentage of the units, with expected income increases, used credit, than the percentages of the other two groups.

Although financial necessity is the main reason for units using instalment credit, there appears to have been cases in the post-war period where other factors induced units to use such credit. For, despite the fact that they had large holdings of financial reserves, many units financed their purchase of durables by instalment credit. In these cases,

TABLE 2

RATIO OF ANNUAL INSTALMENT DEBT PAYMENT RATE TO PREVIOUS YEAR'S DISPOSABLE INCOME, BY INCOME EXPECTATIONS

(Percentage distribution of spending units)

Annual debt payment rate, Jan.-Feb. 1952 as per cent of 1961 income	Expectations about 1962 as related to 1961 income[b]		
	Smaller	Same	Larger
No instalment debt	60	62	41
Under 5	4	6	7
5 - 9	11	8	14
10 - 19	14	15	21
20 - 39	9	7	14
40 or more[c]	2	1	2
Not ascertained	*	1	1
Total	100	100	100

* Less than one-half of one per cent.

b Excludes cases for which data about income expectations were not ascertained.

c Includes cases of zero or negative income.

SOURCE: 1962 Survey of Consumer Finances, p. 73.

the units preferred to use instalment credit rather than diminish their asset holdings. One possible explanation of this preference for instalment credit is that many such households may have considered it easier to borrow at the time of purchasing new durable goods when credit was made readily available by the sellers, in order to facilitate sales, than at some later date. Possibly the units reasoned that if they passed over this credit opportunity and financed their purchases from reserves, they may not have the available funds to meet a future emergency. Also, they may have considered that the borrowing of funds to meet this emergency in the future might be impossible, or, at an extremely high cost. The implic-ations of the above analysis are that, firstly, there appears to exist a group of individuals who accumulate reserves only for the financing of emergencies, and secondly, such units tend, as a consequence, to finance their large purchases by using instalment credit.

The 1959 survey of the Survey Research Center does provide some information on consumer attitudes toward the con-current holding of liquid assets and debt, and hence, on the likely strength of the above stimulant for units to use credit. A number of consumers were asked their opinions on why a person buys a car on time payment, even though he has sufficient money (savings) in the bank to pay cash. As Table 3 indicates, 68 per cent give what may be termed positive reasons for such behavior; 56 per cent stated that he is earmarking his cash for other purposes; and 12 per cent stated that he is gaining, in some way, by using the credit. Less than 7 per cent gave

derogatory reasons for such behavior. In describing such a person, 52 per cent use flattering adjectives such as intelligent, and informed, and 17 per cent use unflattering adjectives such as stupid, and foolish. Thus, on balance, consumers view holding debt and liquid assets concurrently, as rational behavior, indicating that the stimulus to use credit arising from the desire to keep assets intact may be quite strong.

In an earlier essentially deductive treatment of the same problem, Haberler says: "Those who incur instalment debt in spite of the fact that they possess liquid assets, must have strong reasons for not using these assets for the purchase of goods. Instalment credit is expensive."[1] He advances the following as possible reasons: (1) consumers may consider liquid assets as long-term assets to be held for long-term purposes; (2) they may lack confidence in their will-power to replace any liquid assets which are liquidated; and (3) liquidating liquid assets may involve costs or loss of potential profit.[2] His first two reasons closely parallel those suggested in Table 3 as an explanation of this type of behavior.

Although the data collected by the Survey Research Center provides no direct evidence on how common the use of credit instead of assets is within an economy, it does give an indirect indication. Table 4 shows that in early 1959, 43 per cent of all spending units surveyed had both personal debt and liquid assets; 19 per cent had liquid assets in excess of

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[1] G. Haberler, Consumer Instalment Credit and Economic Fluctuations, (Michigan: University Microfilms, Reprinted 1966) p. 44.

[2] Ibid., pp. 44-45.

TABLE 3

CONSUMER ATTITUDES TOWARD CREDIT USERS WITH LIQUID ASSETS

Reasons Given (first question)	Per Cent of Replies	Description (Second Question)	Per Cent of Replies
To keep bank account for emergencies intact	42	Intelligent; informed; plans ahead	30
Difficulty of replacing savings	5	Cautious; conservative;	11
		Wise Guy; smart; shrewd	11
Cash wanted for something else	9		52
	56		
To establish credit	6		
Better service; better price	5		
Use of car while paying	1		
	12		
Only derogatory statements; no reason	7	Stupid; unwise; foolish crazy	12
		Does not calculate; not good with money; poorly informed	4
		Impatient; impulsive; extravagant	1
			17
Other; don't know; not ascertained	25	Other; average; ordinary; don't know; not ascertained	31
TOTAL	100		100

personal debt; and 23 per cent had liquid asset holdings which were less than their personal debt. These facts mean that firstly, roughly one-third of spending units with debt could have eliminated their entire personal debt had they chosen to diminish liquid assets for debt; and secondly, an additional one-third of those spending units with debt could have reduced their debt by diminishing liquid assets.

Now, from the above, it appears that an additional factor causing spending units to use instalment credit is its easy availability and relatively low cost. If instalment credit were not readily available, or available only at an extremely high cost, then it is likely that spending units would not be encouraged to use credit in preference to their financial reserves. For the cases where this preference for credit does hold, the rather interesting conclusion can be drawn - that the holding of liquid assets is the factor causing these units to use credit, in complete contrast to our earlier finding that the lack of liquid assets was a major stimulant causing other units to use credit. However, the difference between the two conclusions lies in the fact that the demand for credit by the units giving rise to the former conclusion, arose from a desire to keep assets intact, whereas in the latter case, the units' demand arose from their very strong desire for durables.

On the basis of the above analysis, we are able to conclude that the main factors which cause spending units to use instalment credit are either, financial necessity backed with optimistic expectations of future income, or a strong

TABLE 4

RELATIONS BETWEEN PERSONAL DEBT AND LIQUID ASSETS, BY INCOME, EARLY 1959[a] (Per cent of spending units)

	All Spending Units	1958 Money Income Before Taxes (dollars)								
		Under 1,000	1,000 to 1,999	2,000 to 2,999	3,000 to 3,999	4,000 to 4,999	5,000 to 5,999	6,000 to 7,499	7,500 to 7,499	10,000 and over
No Debt	40	58	57	44	36	32	30	29	31	49
No liquid assets	8	27	21	14	5	4	3	1	1	6
Some liquid assets	32	31	36	30	31	28	27	28	30	49
Some Debt	60	42	43	56	64	68	70	71	69	51
No liquid assets	17	34	29	30	23	17	11	6	4	2
Some liquid assets	43	7	15	26	41	51	59	65	65	49
Debt as a percentage of liquid assets:										
Under 100	19	4	6	14	17	22	25	27	31	
100 and over	23	3	9	11	24	30	34	38	34	23
All Cases	100	100	100	100	100	100	100	100	100	100

SOURCE: "1959 Survey of Consumer Finances, the Financial Position of Consumers," Federal Reserve Bulletin, July 1959, p. 721

[a]Personal debt and liquid assets as of time of interview; income before taxes in preceding year. Personal debt includes all short - and intermediate - term consumer debt other than charge accounts and excludes mortgage and business debt. Liquid assets include U.S. savings bonds, checking accounts, savings accounts in banks, and shares in savings and loan associations and credit unions; currency is excluded.

[b]No cases reported on less than .05 per cent. NOTE: Detail may not add to total because of rounding.

desire to keep previously acquired assets intact. One of the most significant implications following from this conclusion is that many of the factors to which economists have attributed the use of instalment credit are, in fact, variables influencing the unit's demand for durables. Nevertheless, no matter how large a unit's demand, if the unit is neither financially weak, nor has a desire to maintain assets, it will not incur credit commitments. Equally, if the unit does not have a strong demand for durables, then, no matter what its situation, it will not use credit.

Having now given some indication of the main factors responsible for spending units using instalment credit, we shall, in the following two chapters, endeavour to estimate the likely strength of these factors for spending units in different stages of the life cycle, and, from these findings, predict the relative use of credit by such units. In order to make these estimates, we briefly examine in the next chapter (using cross-sectional data published by the Michigan Research Center) the behavior and characteristics of spending units in different life cycle stages.

CHAPTER II
CHARACTERISTICS OF THE DIFFERENT CLASSES OF UNITS

The particular classes of units examined were:
(1) single; (2) married without children and; (3) married
with children. Each class was further subdivided on the basis
of age, in order to analyse the characteristics of those units
in each class who are below 45 years and those who are above that
age.

(i) Single Spending Units

From casual observation, we would expect young (i.e.
under 45 years) single units to have a relatively small retail
demand for household durables compared to their demand for
automobiles, since their demand for household appliances tends
to be primarily satisfied through the rental of furnished
suites etc. Evidence to show that this is, in fact, the case
can be seen, for example, in the year 1963 (Tables 5, 6 and 7).
Of the 39 per cent of the units in this group making major
purchases (i.e., over $100), only 25 per cent purchased house-
hold durables solely, while the remaining 75 per cent (i.e. 29%
of the units) purchased automobiles.

Although the above tables appear to indicate a reverse
relationship for the older units, this result can possibly be
explained by the fact that many of the units examined were
persons widowed, divorced, or separated (with or without
children) who would, as a result of owning a home, have a high
replacement demand for household durables. Therefore, it is

TABLE 5

PURCHASES OF NEW AND USED CARS BY LIFE CYCLE

(Purchases as a percentage of spending units in each group)

LIFE CYCLE	NEW CARS			USED CARS		
	1955	1962	1963	1955	1962	1963
Under age 45						
Single	10	7	6	19	22	18
Married, no children	14	20	13	24	29	13
Married less than 10 years	12	9	8	30	38	33
Married more than 10 years, children	17	10	15	25	27	27
Age 45 or over						
Married, children	13	12	15	23	24	25
Married, no children	11	11	9	10	12	12
Single	3	5	5	5	8	5

SOURCE: 1964 Survey of Consumer Finances, p. 57

TABLE 6

PURCHASES OF FURNITURE AND HOUSEHOLD APPLIANCES

BY LIFE CYCLE

	PROPORTION THAT PURCHASED			MEAN EXPENDITURE[a]		
	1962		1963	1962		1963
	Spending Units	Family Units	Family Units	Spending Units	Family Units	Family Units
Life Cycle						
Under age 45						
Single	25	33	33	$380	$360	$380
Married: No Children	67	69	66	$690	$690	$680
Children	56	56	55	$410	$420	$430
Age 45 or older						
Married: Children	44	44	49	$430	$440	$480
No children	37	39	32	$370	$370	$460
Single	23	26	23	$310	$340	$310

[a] Buyers only. Before deductions for trade-in; includes amount borrowed. Amounts are rounded to the nearest ten dollars.

SOURCE: 1964 Survey of Consumer Finances, p. 61.

TABLE 7

MAJOR EXPENDITURES ON CARS AND HOUSEHOLD DURABLE

GOODS IN 1963

(In per cent of all family units)

Life Cycle	Per cent that made a major expenditure[a]	AMOUNT OF EXPENDITURE				
		$100 -299	$300 -499	$500 -999	$1000 or more	Mean Major Expenditure[a]
Under age 45						
Single	39	11	9	6	13	$ 800
Married,no children	65	12	12	14	27	$1,270
Married,less than 10 years,children	72	18	11	20	23	$ 980
Married,10 yrs.or more,children	60	15	7	12	26	$1,190
Age 45 or over						
Married,children	60	13	10	11	26	$1,260
Married,no children	44	12	7	8	17	$1,160
Single[b]	26	11	3	4	8	$ 900

[a] A major expenditure is defined as a total net outlay (price minus
trade-in) per family of at least $100 on cars and durables in
1963. Buyers only.

[b] Includes persons never married and persons widowed, divorced, or
separated (with or without children).

SOURCE: 1964 Survey of Consumer Finances, p. 64.

likely that those units who have never married will still have automobiles as the durable good most demanded. A little evidence in support of this is given by the fact that, in 1960, the older single units spent 3.8 per cent of their income on the purchase of automobiles and only 1.7 per cent on household appliances.

Since the demand of the younger units is concentrated toward automobiles, it would appear that the main stimulus behind their desire for durables is either travel convenience or social reasons. For the older single units, while expecting social forces to play a role in determining their desire for durables, it is more probable that greater pressure comes from a desire to replace previously purchased durables with newer and improved models. The size of each group's demand for durables, during any particular period, depends upon the strength of the stimuli acting on each of the groups. In 1963, for example, it is evident that the pressures for the purchase of durables were relatively stronger on the younger group, since 39 per cent of the younger units made such purchases, compared to 25 per cent of the older units.

Turning, now, to an examination of the financial characteristics of these groups of single units we find that from Tables 9 and 10 a majority of the single units under the age of 45 years have little or no liquid asset holdings, while at the same time earning incomes less than the fifth decile. With special reference to those units in the 18-24 age bracket who account for approximately 45 per cent of the units, we see that in 1960, 47 per cent of these had liquid reserves of less than $99, while at the same time 60 per cent of the units

TABLE 8

AGE OF FAMILY HEAD BY FAMILY LIFE-CYCLE STAGE

(Percentage distribution of family units)

Family life-cycle stage	Total	AGE OF FAMILY HEAD					
		18-24	25-34	35-44	45-54	55-65	65 or more
Under 45 years of age							
Single, no children	100	44	25	31			
Married, no children	100	21	41	38			
Married, youngest child under 6	100	13	50	37			
Married, youngest child 6 or over	100	*	20	80			
45 or more years of age							
Married, children	100				72	24	4
Married, no children							
Head in labor force	100				40	47	13
Head retired	100				1	15	84
Single, no children							
Head in labor force	100				47	41	12
Head retired	100				*	16	84

*Less than 0.5 per cent.

SOURCE: 1964 Survey of Consumer Finances, p. 18.

-19-

TABLE 9

DISTRIBUTION OF FAMILY INCOME AND MEDIAN INCOME BY FAMILY LIFE CYCLE STAGE

(Percentage distribution of family units)

Family Life Cycle Stage	Under $1000	$1000-1999	$2000-2999	$3000-3999	$4000-4999	$5000-7499	$7500-9999	$10,000 or more	Total	Median 1963 family income[a] Total	Disposable
Under 45 years of Age:											
Single, no children	10	15	13	14	10	22	12	4	100	$3850	$3350
Married, no children	4	2	1	6	10	32	19	26	100	$7070	$6000
Married, youngest child under 6	2	3	5	5	10	37	19	19	100	$6720	$5950
Married, youngest child 6 or over	1	1	4	8	4	32	25	25	100	$7500	$6750
45 or more years of age:											
Married, children	1	6	6	6	8	24	15	34	100	$7430	$6680
Married, no children											
Head in labor force	1	3	6	4	10	29	20	27	100	$7300	$6340
Head retired	2	29	27	11	8	8	8	7	100	$2710	$2710
Single, no children;											
Head in labor force	8	13	14	8	16	24	9	8	100	$4410	$3870
Head retired	19	37	17	8	7	9	1	2	100	$1850	$1850

[a] medians were interpolated for life-cycle classes. SOURCE: 1964 Survey of Consumer Finances, p.20

TABLE 10

TOTAL LIQUID ASSET HOLDINGS WITHIN LIFE-CYCLE GROUPS

(Percentage distribution of spending units)

Life Cycle Group	Total	Zero	$1 -199	$200 -1999	$2,000 or more
					TOTAL LIQUID ASSET HOLDINGS
Single:					
Age 18 - 44	100	27	20	39	14
Age 45 and over	100	32	10	27	31
Married:					
Age 18 - 44 - no children	100	28	19	40	14
Age 18 - 44 - children	100	20	21	43	16
Age 45 and over,no children	100	18	8	32	43
Age 45 and over,children	100	23	11	37	29

SOURCE: 1960 Survey of Consumer Finances, p. 80.

earned incomes below the third quintile.

With regard to the units making up the older category, the tables display some interesting points concerning financial positions. The first of these is that, despite the fact that a larger percentage of older units have larger holdings of liquid assets than do younger units, there is also a greater proportion of such units with no assets whatsoever. Also from the table, it seems that a majority of these older units earn low incomes; for example, in 1963, over 50 per cent of the units earned less than $4,000.

(ii) Married Spending Units

Looking at the composition of the demand arising from married units, we would expect that, in contrast to single units, this demand would be directed primarily towards household appliances and furnishings. Evidence to support this comes from Table 11, which indicates that, irrespective of the number of children or the age of married units, their purchases of household appliances during the late fifties were 200 per cent to 300 per cent greater than those of single units. For example, in 1955 only 21 per cent of single units under 45 years of age purchased household items, whereas 60 per cent of married units with no children made such purchases. An additional point of interest is that the purchase of automobiles (especially new vehicles) occupies a relatively more important position in the durable good expenditures of the older married units (Tables 5, 6 and 7). This finding

TABLE 11

PURCHASERS OF FURNITURE AND HOUSEHOLD APPLIANCES

BY LIFE-CYCLE GROUPS

(Purchasers as a percentage of all spending units in specified group)

GROUP	ANY PURCHASE		
	1955	1958	1959
Single:			
Age 18 - 44	21	25	31
Age 45 and over	24	20	20
Married:			
Age 18 - 44, no children	63	52	56
Age 18 - 44, has children	58	60	55
Age 45 and over, no children	43	39	35
Age 45 and over, has children	51	47	50

SOURCE: 1960 Survey of Consumer Finances, p. 46.

was to be expected as, by the time married units have reached the age of 45 years, they have obtained the major part of those durables necessary for the establishment of a home.

With regard to those units who have recently married, (irrespective of whether they have children or not) the main stimulus behind their demand for durable goods is possibly a desire to acquire those durables considered necessary, at that date, for a reasonable standard of living. Note that this standard is determined by the social status of the particular unit, and this status has shown a continual rise over the last two decades, as previous luxuries have been incorporated with those goods considered necessities, e.g., dishwashers and television. The result of this last point is that the number of goods desired by couples, in their early years of marriage, has tended to increase over time. In fact, due to the considerable number of durables considered necessary for the establishing of a home today, it appears that an individual's greatest demand for durables occurs in the early years of his marriage. Evidence supporting this is shown in Table 7 by the fact that in 1963, 72 per cent of units who had been married for less than ten years made major durable purchases. This percentage is considerably greater than the number of units who made such purchases in other categories. Further evidence is given in Table 6, where it is apparent that the percentage of units in the young married group, who made purchases of furniture and household appliances, was significantly

greater than the respective percentages for the other categories.

Looking, now, at the two older married unit classifications, it appears from Table 6 and 7 that children cause families to have a greater demand for durables, especially household appliances. However, this apparent difference between the behavior of the two groups may be accounted for by the fact that the majority of such units with children lie within the 45 to 54 age bracket (when the unit still has a relatively high demand for durables), while a majority of those without children fall in the 55 and over bracket. Thus, the age difference of the two groups possibly accounts for their difference in durable expenditures more strongly than does the fact that one group has children, while the other has not.

For the older groups, the main factor stimulating their demand for durables, is a desire to replace previously purchased durables with newer and better models or to obtain goods that have come to be accepted as necessary for the home since their marriage, or to acquire some luxury goods. In connection with this, it is important to note, on intuitive grounds, that it is unlikely the alternative will be as strong as those pressures acting on the younger married units in the process of setting up a home; but, because of the importance of the replacement factor, they are possibly stronger than those acting on single units. This last fact is clearly seen in Table 7 by the vast difference in the percentage of units who made major purchases in each of the respective groups.

Having examined the differing demands for durables
of the various types of married units, we shall now examine
the characteristics of the units falling in each category.
From the above tables it is evident that a majority of the
young units with children are concentrated within the early
age brackets (Table 8), while, at the same time earning large
yearly incomes. Note from Table 9 that in 1963 over 75 per
cent of such units earned an income greater than $5,000,
(i.e., the fifth income decile) and 45 per cent earned more
than $7,500 (i.e., the seventh income decile). These high
levels of earnings follow from the fact that a majority of the
units have two members employed simultaneously, e.g., in 1963,
over 60 per cent of these units followed the practice. In
addition to the above information on this group of units, we
find from Table 10 that 47 per cent of the units held liquid
assets valued at less than $199, while only 14 per cent held
assets above $2,000.

This same situation also appears to hold for those
young units who have children, but have been married for less
than ten years. From the above tables we find that a majority
of units are in the 25-35 age group and earn incomes in excess
of the fifth income decile. In addition to this, over 60 per cent
of the units have liquid asset holdings under $2,000, with more
than 40 per cent of them holding assets worth between $200 and
$2,000.

Turning to an examination of a second subgroup of units

1. G. Katona, C. A. Lininger, and E. Mueller, 1964
Survey of Consumer Finances (University of Michigan:
Braun-Brumfield Inc., 1965) Table I-II. p.21

in the young married classification, (namely those couples with the youngest child over six years of age), we find from the tables that such units have the following characteristics; a majority are within the 35-44 age bracket, and earn a relatively high income (Tables 9 and 10). Since the surveys give no information on the liquid asset holdings of these units, it was necessary to make rough calculations on the basis of the relationship between age and liquid assets[1] in order to get some indication of these. The result showed that 20 per cent of the units appear to have liquid asset holdings of less than $200.

The first point to be noted from an examination of the two older married classifications is that a majority of these units with children will be concentrated within the 45-54 age bracket (72% in 1963), while the majority of those units without children will tend to be older. Note that the latter group of units can be further subdivided into two subgroups (on the basis of whether the head is working or retired) in which the general characteristics of units are widely different due primarily to the difference in the units' ages. With respect to those units where the head is still working, we find that a majority of them are under 64 years of age (Table 8), which, naturally, is in sharp contrast to those

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[1] The Survey Research Center, loc. cit., Table 4-4. p. 80.

units where the head is retired, since 80 per cent of these are over 65 years.

From Table 9 we find that, with regard to the older married units with children, a majority earned an income of greater than the seventh decile ($7,500) in 1963, with 78 per cent earning greater than $5,000. For the first subgroup of these older units without children, it is evident from the table that their earnings are slightly lower, but similar, to those received by units with children. For the units where the head is retired, the table supports previous expectations that such units will have low earnings (in 1963, 50% earned less than $3,000). Turning to Table 10, it is evident that the units contained in each of the above three categories have substantial holdings of liquid assets, the largest amounts being held by those units without children. This last result possibly arises from the fact that the living expenses of those units without children are less than the expenses of units with children, thus allowing the latter to accumulate greater reserves.
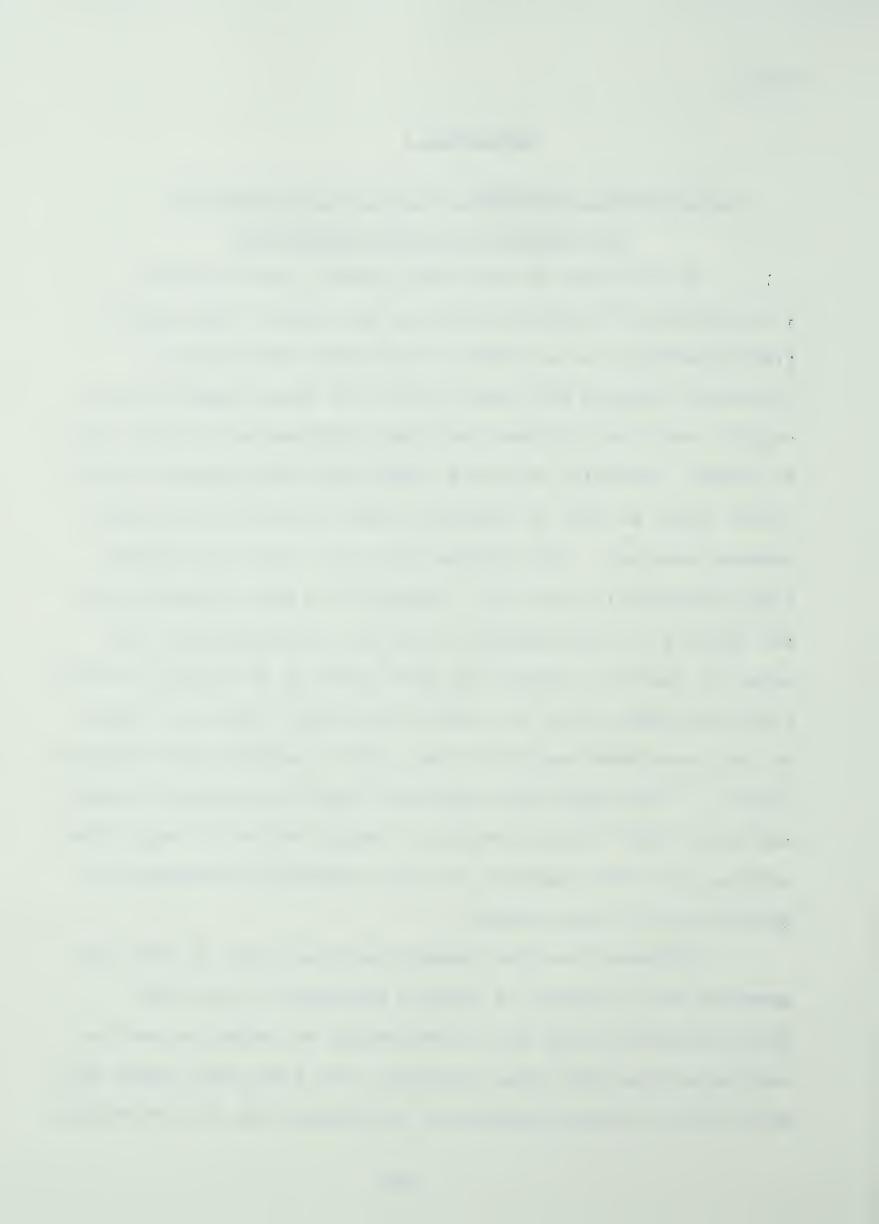
CHAPTER III

THE EXPECTED DIFFERENCE IN THE USE OF CREDIT BY

THE VARIOUS LIFE-CYCLE CATEGORIES

On the basis of the above tables, and the brief description of the units making up the various life-cycle classifications, we are able to ascertain the relative pressures inducing the units in each of these stages to use credit, and thus indicate the likely difference in their use of credit. Firstly, we would expect that the greatest use of credit would be made by spending units falling in the young married category. This follows from the fact that despite being financially well-off, a majority of these units are in the process of establishing a home and, consequently, the value of durables required by such units is in excess of their available funds, with the result that these units are forced to use instalment credit if they wish to satisfy their demands quickly. Note that this inducement would be extremely strong for those units who are raising a family and at the same time setting up a home, because they are financially weakened by having only one wage earner.

Evidence that the recently married units do have the greatest use of credit is clearly displayed in the 1963 cross-sectional study of the percentage of units, in each of the respective life cycle groupings, who held debt (Table 12). Since their average expenditure on durables was less than that

made by other units (Table 7), it appears that those units who recently married and were in the process of raising a family, endeavoured to acquire only the more essential and less expensive items, while postponing additional purchases until a later date. However, when this information is used in conjuntion with information on the level of their debts (Table 12), it is evident that many of the units must carry two or more contracts, simultaneously, in an attempt to establish their homes. An additional comment that can be made about these units is that, because of their financial situation, a majority would finance the total amount of their durable purchases through instalment credit.

In connection with units who have been married for some time, it should be noted that financial necessity may not be a very significant factor causing them to use credit. This implication follows from the finding, in the previous chapter, that the needs for durables by such units are less than those of the recently married, while, at the same time, their financial positions are stronger. However, for some units in this category, it must be noted that their financial positions may be weaker than those of the recently married units, due either to the withdrawal of one member from the work force after the home was established, or to the cost of raising a family. In connection with this last point, it should be remembered that children do not expand a family's demand for durables to any extent, but, instead, raise its

TABLE 12

AMOUNT OF INSTALMENT DEBT OUTSTANDING WITHIN LIFE-CYCLE GROUPS.

(Percentage distribution of families)

	Amount of instalment debt, early 1964						
	None	$1-199	$200-499	$500-999	$1000-1999	$2000 or more	Total
Life Cycle[a]							
Under age 45							
Single, no children	70	12	4	6	4	4	100
Married, no children	39	11	18	10	15	7	100
Married, children Youngest under 6	29	12	16	15	21	7	100
Youngest 6 or older	37	14	12	9	19	9	100
45 years or older							
Married, children	40	13	11	13	11	12	100
Married, no children Head in labor force	62	5	12	5	12	4	100
Head retired	81	6	6	2	3	2	100
Single, no children Head in labor force	74	6	8	8	3	1	100
Head retired	94	4	1	*	*	1	100

* Less than 0.5 per cent.

[a] "No children" means no children under 18 living at home.

SOURCE: 1964 Survey of Consumer Finances, p.72.

living expenses and thus restrict its ability to save for future purchases. In such cases the units are forced, by financial necessity, to incur debt when they wish to replace durables or to obtain others considered necessary at some later date. However, despite these exceptions, it appears from the above tables and from our previous analysis, that many of these units are able to finance their purchases, and it is primarily a desire to keep reserves intact that causes such units to use credit. Consequently, we would expect the proportion of units, within this class, using credit to be less than in the recently married category. Another point concerning the behavior of these units is that they tend to purchase more expensive items than do the recently married units (Table 7); which may possibly be explained by the fact that they have a smaller number of durables competing for their income at any given time. Hence, the average size of the contract taken by such units is greater than that taken by the recently married units, e.g. in 1963, $820 compared to $755.

The information yielded by the above tables, together with our brief description of the units falling in each of the categories, suggests that a majority of single spending units do not have a strong inducement to use credit. The main reason for this is probably that they have a only small need for durable goods. With special reference to the young single units, a number of reasons act against their using a significant amount of instalment credit. The main one for units

under 20 years, apparently, is that the durable they most
frequently desire (automobile) is so highly priced compared
to their earnings, that many instalment credit companies con-
sider them to be a bad credit risk. Turning to the slightly
older units (e.g., above 25 years), it is unlikely that their
demand for credit will be strong during any one year, because
a major part of their demand for durables comes from a desire
to replace previously purchased vehicles, and it is improbable
that the resulting demand for credit would be very strong
during a particular year. In addition, because of trade-in
allowances and the relatively strong financial position of
such units, it appears that many of those who do make pur-
chases, may not use credit in any case. From our previous
analysis, it appears that older single units will not have a
great need for credit, the main reason for this being their
very limited demand for durables.

Some evidence is provided by Table 12 of the quantit-
ative difference in the use of credit by young married and single
units. The data clearly indicates that the pressures inducing
the married units to incur debt must be two to three times
stronger than those acting on the single units, as less than 30
per cent of the single units use credit compared to more
than 60 per cent of the married units. Furthermore, the table
shows that the average amount of credit borrowed by single
units is considerably less than that borrowed by young married
units.

Returning to our analysis of the behavior of married units, we anticipate, on the basis of our earlier examination, that the older units would use credit to a smaller extent than their recently married counterparts. The main reason for expecting this is that a majority of these older units acquire their necessary household durables at an earlier age and thus have a smaller demand during their later years. However, from an examination of the characteristics of the units making up this classification, we would expect a greater percentage to use credit, than the percentage of single units, primarily as a result of their stronger desire for durables and their higher living expenses.

An examination of Table 12 indicates that the above expectations appear to hold in reality, since the percentage of units within the older married category using credit is greater than the percentage of single units and considerably smaller than the percentage in the young married category.

With reference to the specific types of units making up the category of older units, we expect the behavior of those units with children to be similar to that of the younger units who have been married for greater than ten years, as the characteristics of the units in each group are basically similar. However, because of their slightly older age, it is possible that the desire to maintain financial reserves may be an important factor inducing these older units to use credit. Consequently, the average amount of credit used by the older units would tend to be greater than that used by the younger group. The probable

reasoning behind this is, that those who were not forced by financial necessity to use credit, would tend to purchase the more expensive goods and finance their total purchase by such means.

The data in Table 12 does give the expected results, with a similar percentage of the units in each of these respective categories using credit, and a greater percentage of the older units owing large amounts of debt. However, one interesting point concerning the behavior of the older units with children which follows from the finding that units owing debt are spread evenly over the debt range $200 or $2,000 (Table 12), is that either these units use instalment credit to differing extents in financing their total expenditure on, conversely, only a few units employ instalment credit during any one year, but finance the major part of the purchase price from this source. The latter explanation seems to be the more realistic since a major part of an older unit's demand for durables comes from the desire to replace older goods. Therefore it is reasonable to expect that, during any one year there will be some units with a large demand, while others will have a small demand.

When we come to explain the behavior of the other older units (i.e., those without children) making up the older married classification, it is evident, on the basis of their characteristics, that they do not have a strong inducement to use credit. Once again the main reason for this is that,

because of their age, they have only a small demand for durables. This is particularly so in those units where the head has retired from the labor force. Evidence to show that this expectation is apparently true, is again shown in Table 12 by the percentage of such units who actually use credit. Note that from a comparison of this percentage with the percentage in other classifications, it appears that the older units without children, and with the head still in the work force, use credit more frequently than the youngsingle units. This difference may be explained by the fact that the older units have a much stronger inducement to purchase durables, (because of their requirement for household goods) and are a much safer credit risk. In addition, it may be more convenient for these older units to use instalment credit in preference to breaking up their established asset portfolios. This latter point probably explains why such a large proportion of the units using credit have debts in excess of $1,000.

From the above discussion of the relative strength of pressures inducing units in the various life cycle groups to use credit, it appears that empirical findings, showing a difference in the percentage of units using credit in each catagory, do in fact display inherent characteristics of the population. Now this result has a number of implications, the two most important of which concern firstly, the methods of estimating the demand for credit, and secondly, the policy measures designed to influence the volume of credit used.

PART II

CREDIT DEMAND PROJECTION

In this section we are concerned with the implications, following from the findings of Part I, on the methods which should be used to predict firstly, the possibility that a particular spending unit will demand credit, and secondly, the future demand for credit within an economy. Chapter IV discusses in detail the way in which false predictions, of the likely credit demand of a particular spending unit, can arise from the use of aggregate cross-sectional data, while in Chapter V an analysis is made of the hazards involved in making predictions of future credit demand on the basis of an empirically estimated equation.

CHAPTER IV

THE INFLUENCE OF THE LIFE CYCLE STAGE ON A SPENDING
UNIT'S DEMAND FOR INSTALMENT CREDIT

In this chapter we consider the implications from the findings in Part I on the methods which should be used to estimate the likelihood of a particular spending unit owing debt. From the analysis, and findings in Chapter III, it appears that, in general, the likelihood that a unit will owe debt is low during the units' single years, reaches a maximum during its early years of marriage, and then slowly declines as the unit grows older. However, since the above projection, of the variation in credit use by an individual spending unit during the life cycle, was based on the findings from cross-sectional data, it is not very helpful in ascertaining the likelihood that a particular unit will owe debt at a particular time. This follows since the probability of a unit using credit at any stage during its life cycle is dependent upon the situation confronting the unit at that time. In connection with this point, a brief attempt is made in the following paragraphs to analyse the significant factors encouraging a spending unit to demand or use instalment credit during the various stages of its life cycle.

If a single spending unit is male, above the age of twenty years, earning a high and secure income, and living in a high class suburban area, the probability that such a unit

will owe debt is relatively strong. We would expect a unit in
the situation described above to have a strong desire to obtain
an automobile and, at the same time, to be a relatively low
risk for the finance companies. However, since very few single
spending units actually have these characteristics, the cross
sectional finding - that a low percentage of single units use
credit - is easily accounted for.

During the early years of marriage it appears that,
virtually irrespective of the financial condition confronting
the unit, it is highly probable that the unit will owe instal-
ment debt. This may occur because a unit has a need for
numerous durables during this period of life, while at the
same time it incurs additional living expenses (e.g. mortgages)
which reduce the ability to make cash purchases. Only if the
units were in an exceptional financial position, or, for some
reason, were able to postpone the purchase of durables, would
its likely use of credit be low.

For a majority of units, just married and establishing
a home, it is unlikely that the level of their incomes will
influence their probability of credit use, (because of the
rather large number of durables required) but, if credit is
used, it will most likely affect the amount used. The argument
behind this last assumption is that many spending units appar-
ently decide on the level of instalment payments they can
afford to make each month and then take on the number of con-
tracts that entail repayments equal to this preselected level.

The higher this level of repayments, the greater the amount of debt the unit will carry. Note that the extent to which a unit can commit itself may be determined by the finance companies, but, in any case, will be positively related to its present and expected income levels. Now, once such units have obtained the debt level consistent with their stipulated repayment rate, they should experience a decline in debt owing in the subsequent periods when the repayments are made. However, once a unit has fully paid off the debt on one durable good, it is quite likely to purchase another, and thus again expand its amount of debt. This process of debt replacement will most probably continue until the unit has acquired all the durable goods it needs.

Empirical evidence in support of the hypothesis above is given by the fact that Silbertson[1] and Katona[2] in their studies found that a significant number of debt users maintained a reasonable measure of stability in the proportion of disposable income devoted to cash payments on instalment credit contracts. In addition to this, the Radcliffe Committee arrived at the conclusion that there is a "large number of units who habitually put aside a constant proportion of their pay packet for purchases of this type"[3]. Now the length of time for which

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[1] A. Silbertson, "Hire Purchase Controls and the Demand for Cars", Economic Journal, Vol. LXXIII (March, 1963).

[2] G. Katona, Psychological Analysis of Economic Behavior (New York: McGraw-Hill, 1951), p. 158.

[3] Committee on the Working of the Monetary System, Report (Cambridge: 1959) Para., 466.

a unit will use credit will depend upon the repayment limit the unit considers it can afford, which is, in turn dependent upon the level of income. Hence, the larger the income, the greater the repayment level, and thus the shorter will become the time period during which the unit will owe debt, but also the greater the volume of debt held at any given time. On the basis of the above, we can suggest that, on the average, those recently married units with the larger incomes will have the greatest level of debt outstanding at any one time, resulting in a shorter period during which debt is owed. Now, once a unit has acquired those durables considered essential for the home, the likelihood that it will owe debt depends on a number of factors. Firstly, we would expect the likelihood to be relatively high if the unit is receiving a relatively low income, has a large family, and is living in its own home. The reasons behind this expectation are that the low income and high living expenses would allow the unit little opportunity to save, consequently forcing it to finance necessary replacements through the use of credit. Note that we would expect this likelihood to be less than that attributed to a recently married unit, because replacement purchases are discontinuous through time and can often be postponed. Secondly, we would expect a unit to have a greater likelihood of owing debt if its savings are in a non-liquid form, than some other unit whose savings are liquid. However, with regard to units with large liquid reserves, it is difficult to comment on the probability that they will use instalment credit, because it is mainly subjective factors

which determine whether or not they will use credit (i.e., whether they prefer the use of credit to diminishing their savings). Thus, it seems that unless the unit is in a weak financial position during this stage of its life, we are unable to estimate, with any accuracy, its' likelihood of credit use.

For an older unit it would seem that, irrespective of its financial position, the likelihood that it would employ the use of instalment credit is low. The reason behind this could be that unless the unit were faced with some exceptional circumstance, it would have a very small demand for durables.

The most significant points arising from the above discussion are that different factors influence the likelihood that a particular unit will owe (i.e., demand) credit during the various stages of his life cycle, and that the same factors may not act in the same direction during the different stages. An example of the last claim occurs when a permanent increase in the unit's income during the early years of marriage is likely to stimulate the use of credit, whereas if this increase were to occur during the later years of life, it would most likely have no effect, and may even encourage the unit to save in order to make the purchase, thus decreasing its demand for credit. The overall implication from all of this is that, in order to get any realistic estimation of the likelihood that a part-icular person will have a demand for credit, it is necessary to know the unit's life cycle stage, and the strength of its various characteristics which induce it to use credit.

In order to obtain information on the last requirement, it would be necessary, via statistical means, to assess the relationship between the characteristics and credit usage by the various units in each of the major life cycle categories. From the previous analysis of the factors influencing the various life cycle categories, it appears that to apply statistical techniques to the total population of spending units, and then to use the resulting estimates of the significance of various characteristics to determine the relative likelihood that a particular unit will owe debt, is an incorrect procedure.

The following discussion of the main results obtained by Lansing, Maynes and Kreinin[1] from the application of multiple regression techniques to the data obtained by the 1956 Survey of Consumer Finances, illustrates the necessity of breaking the population down into life cycle subsections for separate examination in order to obtain more realistic results.

In their endeavour to estimate the significance of various factors in inducing a spending unit to use credit, the authors derived the following equation and fitted it to the data:

$$D = K + a_1C + a_2L + a_3Y + a_4Y^2 + a_5We + a_6So + a_7U + a_8De +$$
$$a_9S + a_{10}M + a_{11}N + a_{12}F + a_{13}B + a_{14}T$$

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[1] J.B. Lansing, E.S. Maynes, and M. Kreinin, "Factors Associates With the Use of Consumer Credit," Consumer Instalment Credit, Conference on Regulation, N.B.E.R., Vol. I, Part II (Washington: Government Printing Office, 1957) pp. 487 - 520.

The meanings of the symbols are given in Table 13, while the coefficient and standard error of those found to be significant at the 95 per cent level, are shown in Table 14.

The first result arising from Table 14 is that the level of income appears to exert a positive influence on the likelihood of a unit having debt, while its square has a negative influence. The alternate signs of these two coefficients appear to indicate that the influence of the level of income on the probability of a unit owing instalment debt is curvilinear i.e. as income increases, the probability first rises and then falls. However, the alternate signs of the coefficients could possibly have been generated by a sample where the units followed the pattern shown in Part I. Table 9 shows that low income levels tend to be associated with single units, the median levels of income and those above the median are earned by the young married units, while the higher levels are received by the relatively older units. If this relationship did exist in the data, it is only a statistical result that the two coefficients would have these signs, and thus, the authors' claim that a curvilinear relationship exists, may be invalid.

The negative influence attributed to the liquid-asset holdings agrees with the commonly held view that spending units with small holdings are more likely to borrow than those with larger holdings. However, this result may have been generated by the fact that the younger units have very small holdings of assets are found within the older age bracket and these, as shown previously, use credit sparingly. Thus the result may

TABLE 13

VARIABLES USED IN THE REGRESSION ANALYSIS

Variable	Symbol
Instalment debt	D
Constant	K
Stage in the life cycle	C
Liquid assets	L
Income	Y
Square of Income	Y^2
West	We
South	So
Income increase	U
Income decrease	De
Income stability	Sa
Mortgage	Mo
Number of people	N
Farmer	F
Better off	B
Good or bad times	T

SOURCE: J.B. Lansing, E.S. Maynes , and M. Kreinin, loc. cit, p. 509.

TABLE 14

ESTIMATES OF INSTALMENT DEBT EQUATION

Variable	Symbol	Coefficient	Estimate*	Standard Error
Constant	K	K	0.303	0.042
Life Cycle	C	a_1	0.051	0.009
Liquid Assets	L	a_2	-0.072	0.008
Income	Y	a_3	0.502	0.099
Square of Income	Y^2	a_4	-0.192	0.036
West	We	a_5	0.130	0.035
South	So	a_6	----	----
Income Increase	U	a_7	----	----
Income Decrease	D	a_8	----	----
Income Stability	Sa	a_9	-0.088	0.036
Mortgage	Mo	a_{10}	0.110	0.044
Number of People	N	a_{11}	----	----
Farmer	F	a_{12}	-0.227	0.076
Better Off	B	a_{13}	----	----
Good or Bad Times	T	a_{14}	----	----

Multiple Correlation Coefficient: R= 0.48

Number of Observations: 899

* Estimates are shown only for coefficients equal to or greater than 1.96 times their respective standard errors. Other variables were omitted from the analysis before computation of the estimates shown.

SOURCE: J.B. Lansing, E. Scott Maynes, M. Kreinin, Loc. cit., p. 510.

again reflect the tendency for the variables under examination to divide the population up into different age groups, where different factors act to determine their willingness to incur debt.

Moving on to a more interesting result obtained by the study, we find that, other things being equal, home owners with a mortgage are more likely to owe instalment debt than those without. Taken in conjunction with a previously proven result[1] it implies that families who own homes free of debt tend to find it easier than other families to accumulate the funds needed for purchases, and thus tend to use credit less frequently. Another factor giving rise to this result is that the variable again divides the sample by age, since it is more likely that younger people will have homes on mortgage, whereas older units would most probably have completed the purchase of their homes. Furthermore, it follows that units tend to obtain their necessary housing requirements while they have the house on mortgage, and thus it is only natural that those units with no mortgage would have little use of credit. Once again, the result may not reflect the influence that mortgage has on the likelihood of a unit owing debt; in fact, it is possible that it was generated by the characteristics of the sample used.

The highly significant coefficient obtained for the life cycle variable agrees with our expectation that the

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[1] Ibid., p. 506.
The authors carried out an earlier investigation before deciding on the final equation, and during this investigation found that home ownership was not significant.

probability of a unit owing debt is greatest for young couples with small children and least for older units. The fact, that the number of people within the spending unit fails to significantly influence the unit's propensity to incur instalment debt, helps to support our earlier claim that additional children do not increase a unit's demand for durables but rather tend to raise its current cost of living, and hence may induce the unit to use credit at a later stage to finance replacement. Since this study was based on cross-sectional data, it is doubtful that this influence would be noticed.

In reference to the other variables examined, we see, in the case of units experiencing income changes, no evidence from the study that the first two groups (i.e., those whose income is rising and those whose income is falling) are any different from the rest of the population in their attitude toward instalment credit. However this result may have been caused by the study using the income change occurring in the previous period as the basis for classifying units. This would mean that income changes of a cyclical nature were combined with secular changes, and since the influence of each of these changes tends to be opposite in its effect on the propensity to incur debt, it is likely that the above result was derived from their combined effects.

In the area of income increases, the secular effect (i.e., income changes which are expected to continue for a considerable period) will dominate the cyclical effect

(i.e., income changes considered to be temporary) in encouraging the use of credit, because a unit appears to be more willing to take on future repayments when there is reason to believe that its income will continue to increase, or at least maintain its present level. In addition to the depressant effect of having included cyclical income changes, the inclusion of older units in the analysis could possibly have reduced the significance of this variable, since many of these units, although still receiving a secular rise in income, would not incur debt because their demand for durables had already been satisfied at an earlier stage. One further point of interest is that those units with very low incomes would use a cyclical increase to pay off previously incurred debt. This would again help to produce the result that an increasing income does not encourage the use of credit. Evidence in support of this is provided by the 1952 study conducted by Tobin.[1]

Turning to income decreases, it appears that, in theory, cyclical changes would have the greater inducement for the unit to incur debt. This hypothesis is based on the reasoning that if the decline were expected to be temporary only, the unit would be willing to incur debt in order to maintain previous consumption standards. On the other hand, if it considered the decline to be permanent, the unit would more readily postpone durable purchases.

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[1] J. Tobin, "Consumer Debt and Spending: Some Evidence From Analysis of a Survey", Consumer Instalment Credit, N.B.E.R., Vol. I, Part II, (Washington: Government Printing Office, 1957) pp. 521-545.

Therefore, it does not appear conclusive that income change has an insignificant effect on the willingness to incur debt. In fact it is quite feasible that our prediction (i.e., that expected and previous income increases is one of the factors encouraging the use of credit by younger units) is consistent with the results generated by the study. Another result, apparently contrary to this hypothesis, is the insignificance of the unit's expectations concerning both its own financial situation and the economic outlook for the country. However, the study was not an exact test of the influence of these expectations, because the attitudes of the units were measured at the time of interview, and not at the time of incurring debt. The effect of this on the results is apparent when we consider that two or three years may have elapsed since the time of incurring debt, during which time the unit's attitudes may have changed on numerous occasions. Furthermore, it is possible that the attitudes of many units may have changed just prior to the interview, leaving the units insufficient time to act on them. Again, the results of the study are not necessarily conclusive.

If the explanation of these results, on the basis of our earlier findings, is correct, it means that the estimates do not enable us to draw conclusions about the influence of these variables on the behavior of a particular classification of individuals. In order to check their influence within each stage, it would be necessary to subdivide the population by the life-cycle stages, and then carry out a separate regression on

the units within each of the stages. This clearly illustrates how failing to consider the behavior of individual units at the micro level can lead to incorrect interpretations being given to aggregate findings. In addition, when interpreting the result obtained by Lansing, Maynes and Kreinin, it must be remembered that since the dependent variable used in the study was allowed to take on only two values, (because people either do or do not owe instalment debt) then the least square regression techniques were not strictly applicable. It is necessary for the dependent variable to follow a normal distribution, if least squares estimating methods are to produce good estimates. The implication arising from the abnormal distribution of the dependent variable in this study, is that, if one factor dominates others in influencing the willingness to incur debt, and if this factor happens to be highly correlated with other variables, it would probably produce results showing these other variables to be of greater importance than they actually are. On the basis of our earlier results, it appears that this may, in fact, have occurred since the level of each of the major variables examined tends to be closely related to the life cycle stage.

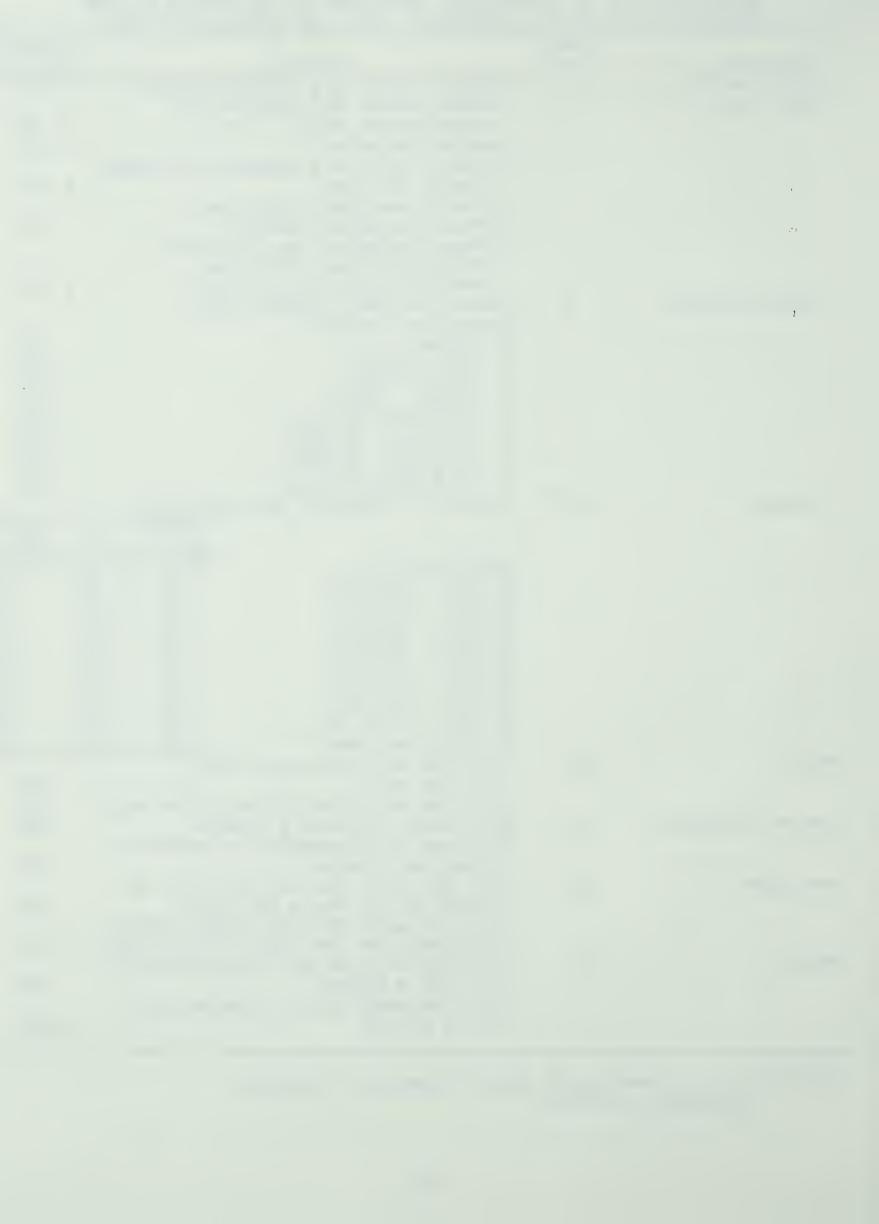The major theoretical error in this study seems to have been made when the authors used their estimates to show the exact contribution of each variable toward the likelihood that a unit will owe debt (Table 15). Now from our earlier analysis, it appears that the results obtained in this table are not of great value, since the weight which should be

CONTRIBUTIONS OF INDIVIDUAL VARIABLES TO ESTIMATES OF THE
PROBABILITY THAT AN INDIVIDUAL WILL OWE INSTALMENT DEBT

Variable	Symbol	Values	Contribution
Stage in the Life Cycle	C	0-older (over 45) single people	0.00
		1-older (over 45) married, no children at home	+ .05
		2-young, single	+ .10
		3-older (over 45) married, children living at home	+ .15
		4-young, married, children, youngest child under 6	+ .25
		5-young, married, no children; young, married, children, youngest 6 years or older	+ .20
Liquid Assets	L	Amount of bank Accounts and Government bonds:	
		0 - None	.00
		1 - $1 - $199	- .07
		2 - $200 - $499	- .14
		3 - $500 - $999	- .21
		4 - $1,000 - $1,999	- .29
		5 - $2,000 - $4,999	- .36
		6 - $5,000 - $9,999	- .43
		7 - $10,000 and over	- .50
Income	Y, Y^2	Income of spending unit in 1955.	

	Effect of Y	$-Y^2$	Total Effect
Under $1,000	0.03	-0.00	0.03
$1,000 - $1,999	.08	- .00+	.07
$2,000 - $2,999	.13	- .01	.12
$3,000 - $3,999	.18	- .02	.16
$4,000 - $4,999	.23	- .04	.19
$5,000 - $5,999	.29	- .06	.23
$6,000 - $7,499	.34	- .09	.25
$7,500 - $9,999	.43	- .13	.30
$10,000 - $14,999	.60	- .25	.35
$15,000 and over	1.36	-1.32	.04

Variable	Symbol	Values	Contribution
West	We	0-if the unit does not live in the west	.00
		1-if the unit does live in the west	.13
Income Stability	Sa	0-if unit reported a change	.00
		1-if the unit reported no past or expected change	- .09
Mortgage	Mo	0-if the unit did not own home on which there was a mortgage	.00
		1-if the unit did own a home with a mortgage at the time of interview	+ .11
Farmer	F	0-if the head of the spending unit is not a farmer	.00
		1-if the head of the spening unit is a farmer	-..23

SOURCE: J. B. Lansing, E. Scott Maynes, M. Kreinin.
loc.cit., p. 513

attached to each factor varies for units within different stages of the life-cycle, and,in many cases, may operate in a direction opposite to that shown. Thus, in order to obtain better results, it appears that separate studies must be made of the units in each of the life-cycle categories, and the results so obtained used to estimate the likelihood of credit usage by units in different stages.

CHAPTER V

IMPLICATIONS ON METHODS USED TO ESTIMATE

THE FUTURE CREDIT DEMAND

Before being able to discuss the implications from the findings in Part I on the methods which could be used to estimate the future demand for credit, we need to know the importance of each group of units in the total demand for instalment credit. Although official statistics do not give a break down of debt users by life cycle stage, information given by the Research Center permitted an estimate to be made of the percentage of debt users falling within each of the life cycle categories, and also of the proportion of total debt carried by these respective groups (Table 16). Although it is risky to generalise from a small sample of the population, it does appear from the statistical devices employed by the Research Center when collecting data, that their findings will be representative of the population as a whole.

TABLE 16

THE PERCENTAGE BREAKDOWN OF INSTALMENT CREDIT
USERS BY LIFE-CYCLE STAGE

Life Cycle Stage	Proportion of the total credit users	Proportion of the total debt held by these units
Under 45 years	%	%
Single	8.7	6.7
Married:		
No Children	7.7	7.2
Children:		
Married less than 10 years	33.5	32.2
Married 10 years or more	15.0	19.1
45 Years or Over		
Married:		
No Children	12.8	12.1
Children	17.3	20.3
Single	5.0	2.3

From the table it appears that approximately one-third of the credit users examined in 1963 were under the age of 45 years and had been married for less than 10 years. At the same time, this group of units accounted for slightly less than one-third of the total debt owing. The table also shows that another one-third of the units employing the use of credit are either under 45 years, married longer than 10 years with children, or married units over 45 years with children. The interesting point about these two classifications of units is that while they made up one-third of the total units using credit, they account for approximately 40 per cent of the total debt outstanding at any one time. The reason for this is that the units tend to carry larger contracts than those

in other life cycle classifications. Furthermore, the table displays the rather surprising result that the proportion of total debt held by single units (both old and young) is relatively insignificant, being less than 10 per cent of the total. At the same time, the table shows that the debt holdings of married units under 45 years with no children account for only a small percentage of the total debt outstandings. The insignificance of this latter group of units reflects the sociological tendency, existing today, for recently married couples to start raising a family relatively soon after marriage. In connection with the last point, a sociological study conducted in the U.S. found that, "besides marrying younger, couples tend to have two or three children right away, in the first years of their marriage, instead of waiting, as was once common."[1]

From our previous analysis and the above findings, it appears that to base a prediction of the future demand for credit on the level of national aggregates, as many economists have done, may be incorrect for the reason that the variables influencing those units, who have the greatest use of credit, may behave independently of their national counterparts. A possible example of this occurs when a decline in national income results from a fall in profits, while the incomes of the main credit users may be moving in the opposite direction.

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[1] Smock, R.B., "What is the American Family?" Consumer Credit and the American Family, A Perspective Analysis, Michigan Business Papers Number 32, (University of Michigan: 1956), p. 2.

A detailed theoretical account of the way in which false predictions can arise from empirical observations on aggregate data is given in the Appendix. The basic point brought out by the Appendix is that many of the relations observed empirically may be only derived relations, since they may have been caused by the variables being tested moving in the same direction as those in the true relation over the sample period. For example, over the period of the study, the growth rate of national income may have corresponded to that of the number young married units, with the result that in an aggregate study the income variable would appear highly significant. Thus the finding of a statistically significant relationship between variables does not prove that the relationship is, in fact, the true one, since over short periods the connection between economic variables may be so close that the differences in correlations between the two types of relations may be too small to be statistically significant. Hence, the high R^2 obtained by some aggregate models does not mean that they will provide accurate predictions of the future demand for credit. The only case in which this would be true is if the variables in the empirical relation and those in the true relation continued to move together.

As pointed out in the Appendix, the difficulties just discussed arise from the existence of derived relations among aggregate variables. Therefore such problems will not hold for examinations of individual households.

Since our findings derived from micro-analysis show variables
which differ too markedly from those used in many aggregate
models, to be of importance in determining the use of instal-
ment credit, it appears that most of these latter predictions
are based on derived relations.

From the knowledge gained in Part I, it appears that
any relation used to make predictions of the future level of
debt must include the following: (1) the growth rates of the
respective class groups, especially of those units recently
married: (2) the income growth of each category of units:
(3) the liquid asset holdings of the younger groups: (4) the
level of finance charges: (5) any likely change in the mat-
urity of contracts: and (6) if the prediction is going to be
made a long way into the future, some estimate of likely changes
in the level of acceptable living. If accurate information were
available on each of the above variables, then a high degree
of confidence could be placed upon the prediction made. How-
ever, despite the vagueness of some of these variables, and
hence, the difficulty of obtaining information, the predictions
obtained from models acknowledging their influence are likely
to be more accurate than those obtained from models that do
not.

PART III

POLICY IMPLICATIONS

In this section of the paper, we examine two of the more important policy implications generated by the findings of Part I. Chapter six discusses in detail the likely effectiveness of governmental measures which influence the terms of contracts (i.e., deposit and re-payment level) and those which influence the cost of such credit in controlling the use of instalment credit. The hypotheses derived in the first portion of the chapter, regarding the areas of influence of such measures, is tested against the results obtained in an empirical study in the second portion. In the seventh chapter an examination is made of the implication of the findings from Part I on the level and growth of instalment credit that an economy is able to maintain over time.

CHAPTER VI

INFLUENCE OF CONTRACT CHARACTERISTICS ON THE

USE OF CREDIT

In order to determine the likely effects which changes in the characteristics of instalment credit contracts have on the overall use of such credit, we must examine what influence these characteristics exert on the use of credit by the different spending units making up the population.
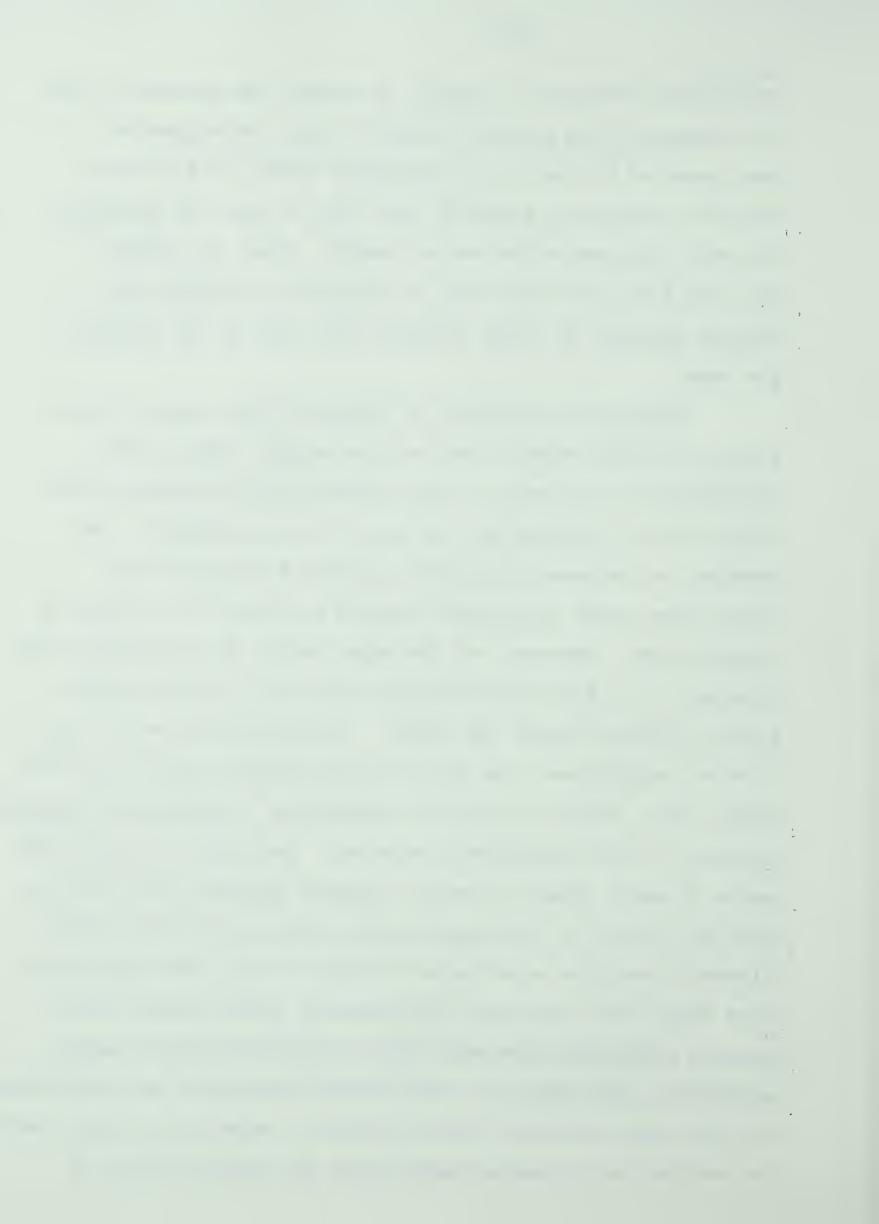
Dealing first with young single spending units, it is reasonable to expect that for the younger units the finance rate[1] levied on the use of credit is likely to be of little concern to them when deciding whether or not to employ credit. This follows from the fact that the cost of credit forms only a small fraction of monthly repayments, and that these units have optimistic expectations concerning their future incomes. For the older units, it is probable that credit costs will play a greater role in determining their demand for such funds, since these units have relatively strong financial positions while sociological factors are behind their desire for durables. This implies that the subjective return, received from the acquisition of the durable item, must be great enough to offset the minimum subjective loss suffered through the use of

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[1]Note that the finance rate is the price charged for a loan to a specified borrower under specified conditions, and is composed of pure interest, a risk premium, and servicing costs including normal profit.

accumulated reserves, or credit, in making the purchase. Now
if, because of its greater financial cost, the subjective
loss incurred by the use of instalment credit is less than
would be suffered if reserves were used to make the purchase,
the unit will prefer the use of credit. Thus, the demand
for credit by such units will be sensitive to changes in
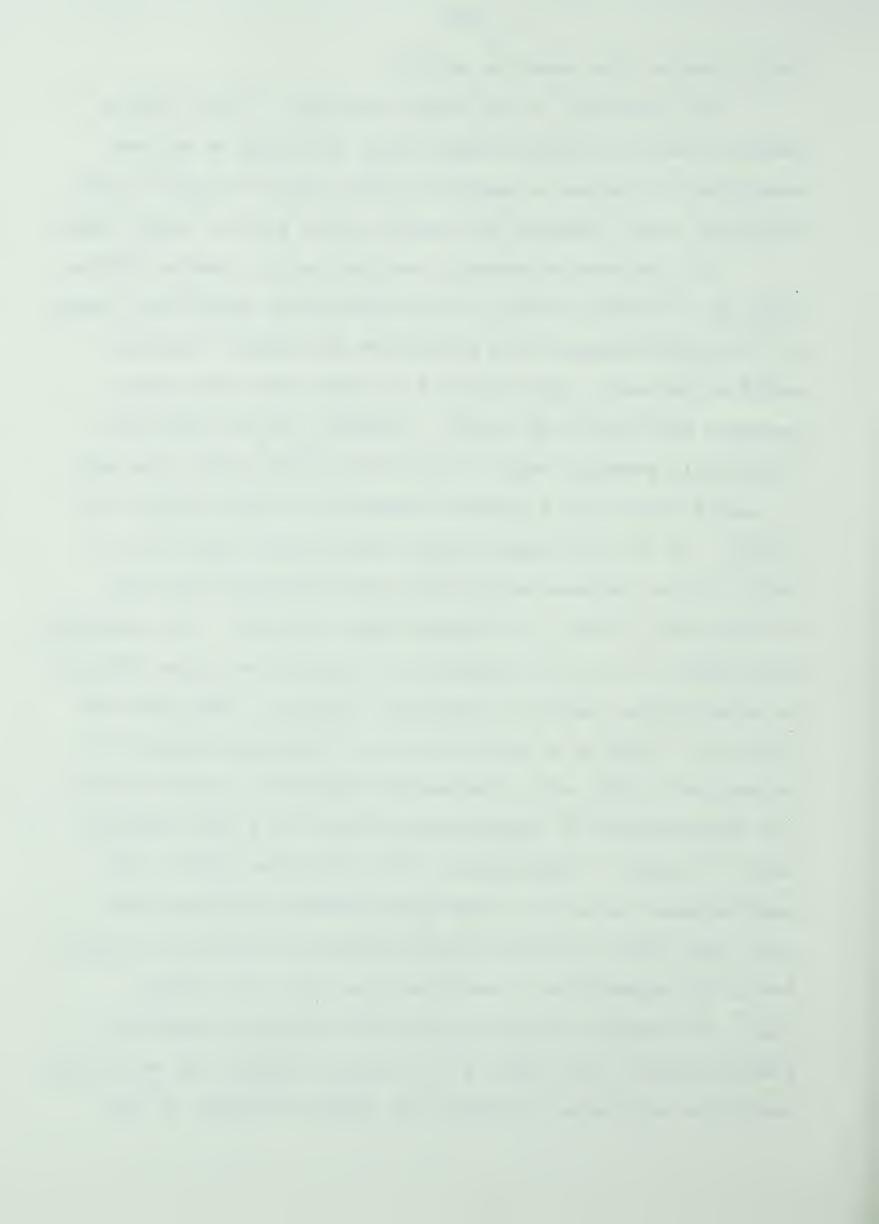finance charges, as these influence the size of the subject-
ive loss.

Turning to the effect of changes in the terms of con-
tracts, we would expect that for the younger single units,
variations in the level of down payments would influence both
their date of purchase and the type of item purchased. For
example, an increase in the down payment requirement may
force these units to postpone planned purchases or to obtain a
cheaper item. However, for the older units, it is unlikely that
changes in the down payment requirements will have any great
effect on their demand for credit. This follows from the fact
that any significant rise in the level required could be met by
these units, either through the trade-in of a previously obtained
article, or from accumulated reserves. The size of monthly pay-
ments is again likely to exert a greater influence over the de-
mand for credit by the younger units, because of their weaker
financial position relative to the older units; the implication
here being that the longer the repayment period (hence lower
monthly repayments) the more able are younger units to carry
such debts, and hence, the more likely they are to use such finance.
For the older wealthier units, however, a substantial change would
be required to influence their demand for credit because of

their greater debt carrying ability.

On the basis of the above reasoning, we are able to predict that the younger single units will tend to be more sensitive to changes in contract terms than to changes in the financial rates, whereas the reverse holds for the older units.

In the case of recently married units, finance charges would be of little concern in affecting their demand for credit as the utility gained from possession of required durables would be extremely high compared to their loss from making payments for the use of credit. However, for the older and financially stronger units in this life cycle stage, the cost of credit would have a greater influence on their demand for credit. As with the older single units, those units have to make a choice between using their own accumulated reserves, or instalment credit, to finance their purchases. The decision, once again, is made by comparing the subjective losses involved in using either credit or financial reserves. Note that the subjective yield of a certain level of financial reserves is determined by the unit's desire for financial security and by the inconvenience of liquidating holdings if a cash purchase were to be made. Consequently, the subjective yields will vary between the units in the same financial circumstances and, thus, help to explain their differing demands for credit. Now if the assumption is made that the other two yeilds (i.e., for owning the durable and from financial reserves) remain constant over time, it is clearly evident why such units should be responsive to changes in finance charges; if the
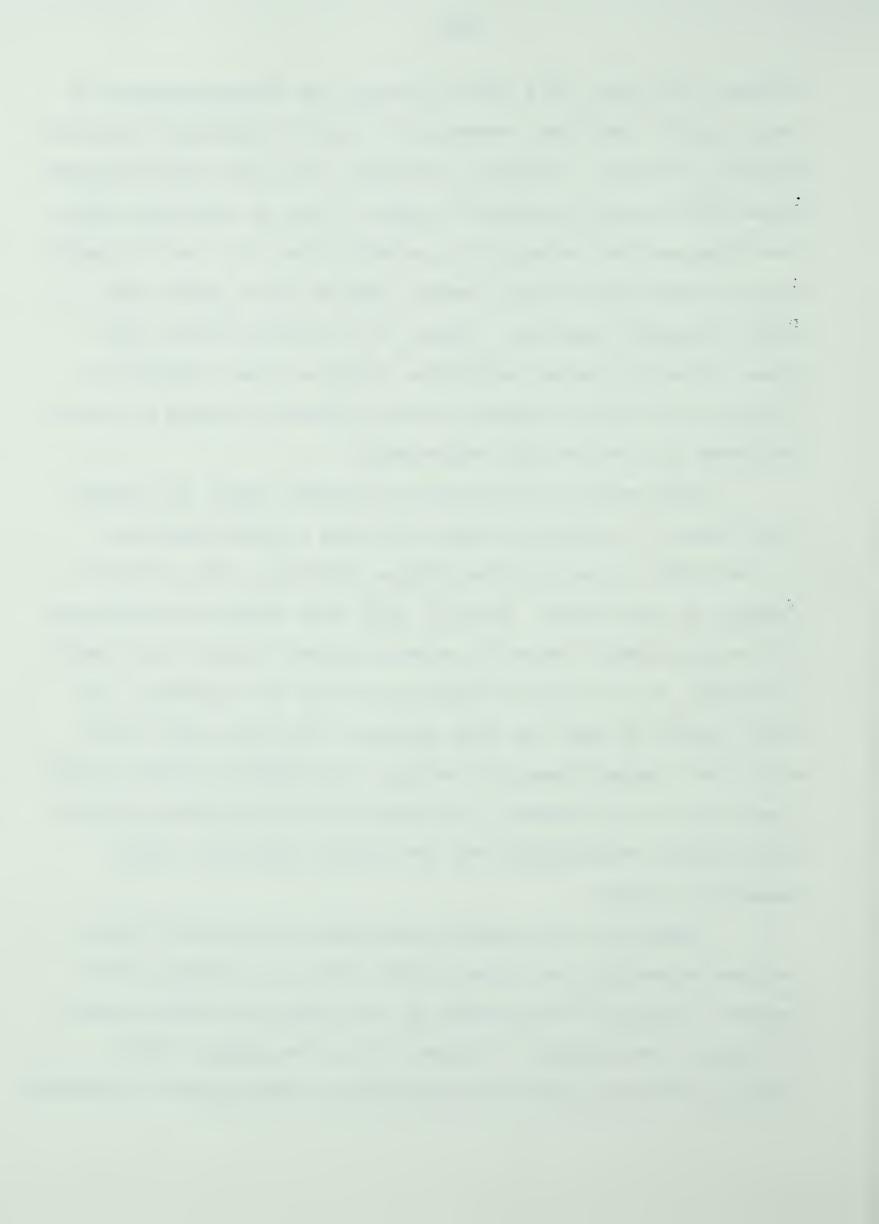
finance rate rose, this would increase the dissatisfaction of
using credit, and thus encourage the use of liquidated financial
reserves, whereas a decline in the cost of credit would possibly
cause the reverse situation to apply. Also in connection with
the older married units, it is probable that the cost of credit
will influence the credit demands made by those units with
small financial reserves. Hence, it is quite probable that
these units will delay purchasing durables after significant
increases in finance charges, since the main stimulus for their
purchases is the need for replacement.

With regard to the married spending units, it appears
that changes in contract terms will have a marked influence
on the credit demands by the younger units but not so much on
demands by older ones. Firstly, high down payment requirements
will most probably cause the younger units to enter into fewer
contracts, as they would require some time to accumulate the
funds needed to meet the down payments. For the older units
with their larger financial backing, and holding durables which
they are able to trade-in, it appears that fluctuations in the
down payment requirements may not greatly influence their
demand for credit.

Secondly, some rather interesting theoretical impli-
cations arise with reference to the effect of changes in re-
payment levels on the behavior of the younger and older units.
As pointed out earlier, it appears that the younger units
decide (either by their own discretion or from lenders' policies)

on a predetermined ratio to exist between their monthly level
of repayments and income. It follows, then, that variations in
the size of repayments influence the number of contracts that
a unit can carry at any given time, and, hence, influence
the level of its demand for credit. The interesting point to
note in connection with the young married units, is that
variations in the repayment level do not affect their total
use of credit over time, but rather affect the level of credit
that they demand at any one time, and hence, the length of
time they require to obtain all their desired durables. For
example, a higher repayment rate means fewer contracts the unit
can undertake at any one time, with the consequence that, before
other durables can be obtained, a portion of these goods must
be paid off, whereas if the repayments were lower, a greater
number of goods could be acquired at the same time. When con-
sidering the older and wealthier married units, it is diffi-
cult to draw any definite conclusions as to the effect of changes
in the level of repayments on their demand for credit. However,
it does appear that the level of repayments would have to reach
extreme limits before any effect would become evident. In
other words, for fluctuations in the repayment rates to exert
a depressant effect on the demand for credit, it is necessary
for these fluctuations to reach a level which would make it
more convenient for the unit to purchase the durable outright.
This could possibly occur when the repayment period was made
so short that the unit would have to use part of its accumulated

reserves in order to make the purchase, even if instalment credit was used.

Summarising the above theoretical projections it appears that for those units recently married and concerned with the establishment of a home, the cost of credit has little influence in governing the amount of credit demanded. On the other hand, however, a marked influence is exerted on their demand by changes in the level of down payments and repayments. High levels of the former delay the purchase, while fluctuations in the latter have a marked effect on the number of contracts (and hence the amount of debt) the units can carry. Turning to the older and wealthier units, we have seen that changes in contract terms are not likely to have a great influence on their demands for credit, while changes in the cost of such credit are.

The overall conclusion is that young single units, together with recently married units, are likely to have a demand for credit unaffected by changes in finance charges, but sensitive to changes in the contract terms. In the case of the older and financially stronger units the reverse situation appears to apply, with the finance charges exerting the greater impact on their demand for credit. For ease of testing these above conclusions against empirical results, we shall define the former units as credit "rationed", since the amount of credit they desire at any time is greater than the amount they can obtain, either because of unwillingness to commit their future earnings past a certain level, or because of constraints imposed on them by the finance companies.

The latter group of units are defined as "unrationed", since these units demand credit up to the point where the marginal subjective return gained from their investments in durables, equals the dissatisfaction arising from the cost of such credit. Hence, for the unrationed units, the factor limiting their demand for credit is their subjective evaluations, with the implication that the unit could obtain the use of more credit if it so wished, - in contrast with the rationed group.

On the basis of the above hypotheses, we would expect the following relationships to hold for the rationed and un-rationed groups: (1) that unrationed consumers will respond more strongly than rationed consumers to differences in finance charges; (2) that the response of rationed (but not unrationed) consumers to finance charge differences will be wholly due to the fact that, other things being equal, the level of finance charges has an influence on monthly payments; (3) that a simult-aneous increase in both finance charges and maximum contract maturity, and a decline on balance of minimum monthly repay-ments will result in increased borrowing by rationed consumers, but decreased borrowing by unrationed ones; (4) that the debt position of unrationed (but not rationed) consumers will be unaffected by a lengthening of maximum contract maturity, finance charge being kept constant; and (5) that rationed consumers will respond more strongly than unrationed ones to differences in minimum monthly repayments.

To test the empirical validity of the above theoretical analysis, a comparison was made between the predictions in the

preceding paragraph and the empirical findings from a cross-
sectional study conducted in 1960 by Juster and Shay on some
16,000 households.[1] The method of analysis they employed in
this study, was to divide the sample into sixteen randomly
selected variant groups. Each of the thirteen groups was
sent a hypothetical question which specified four alternative
ways in which a stated purchase may be financed. Of the
remaining three groups, one was given three alternatives and
two were given five alternatives. The purchase was identical
for all groups, an automobile costing $1,500 after trade-in
allowance.

The alternative finance plans consisted of offsetting
variations in two of the following: down payments, monthly
payments, maturities, and finance charges. For fourteen groups
there were alternative variations among down payments, monthly
payments or maturities, with the finance charge being held
constant (the finance charge, however, was often different
between groups i.e., 4%, 8%, or 16%). Each of the remaining
two groups was offered alternative variations in finance rates.
Respondents were asked to rank the alternatives in order of
preference, and to indicate which alternatives were un-
acceptable.

Although the method used in the study, to classify the
sample into rationed (R) and unrationed (U) groups, does not

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[1] F.T. Juster and R.P. Shay, Consumer Sensitivity to
Finance Rates, An Empirical and Analytical Investigation,
N.B.E.R., Occasional Paper 88, (New York: 1964)

correspond exactly with that derived from our analysis, it does approximate it closely. The first basis used for making the division was according to the income and marital status groupings shown below.

MARITAL STATUS	INCOME AFTER TAX ($,000)		
	Under 8	8-10	Over 10
Married 15 years of less	R	R	U
Married more than 15 years or unmarried	R	U	U

Consumers with post-tax incomes of less than $8,000 were considered to be rationed, those with more than $10,000 to be un-rationed; while for units with incomes between $8,000 and $10,000, those who were young and married were taken to be rationed, those older or unmarried to be unrationed.[1] Thus, despite the fact that the cut-off points used were arbitrarily chosen, they are seen to be closely related to the division made in our earlier work on the basis of life-cycle stage.

Table 17 shows the elasticities obtained for the ration-ed and unrationed groups with respect to change in minimum monthly payments and finance charges. As predicted earlier, the rationed units appeared to respond much more to differences in minimum monthly payments than did unrationed ones (an estimated elasticity of - .231 compared to - .083), while unrationed units were somewhat more sensitive to finance charges (a mean elasticity of - .072 compared to - .060 for the four possible comparisons, and a mean of - .134 compared

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[1]Ibid., p. 33

to - .067, excluding the one comparison in which the sign of finance charge elasticity was positive).

A more demanding test of our predictions is also provided by the above study. As noted earlier, we would expect that a combination of higher rates and longer maturities (minimum monthly payment declining on balance) should increase the borrowing by rationed consumers (because payments fall) but decrease that of unrationed consumers (because charges rise). A comparison of the responses to variants 6, 10, 11 and 15 in Table 17 provides us with a test of this prediction.

Variants 10 and 11 both have an 8 per cent charge, variants 6 and 15, a 16 per cent rate throughout. In variant 10, the maximum contract length is 24 months and the minimum possible monthly payment $67.70. Variant 11 is the same as 10 except that a 36 month option carrying monthly payments of $46.80 is also available, the other two variants, 6 and 15, both offer terms of 48 months carrying a monthly payment of $41.50. Our prediction is that rationed consumers will prefer variants 6 or 15 to either 10 or 11, since the minimum monthly payment is lower despite the fact that the finance charge is twice as high. On the other hand, unrationed consumers should prefer either 10 or 11 to 6 or 15, since the finance charge is lower even though the minimum obtainable monthly payment is higher. The differences found in the acceptable ratios are shown in the third portion of Table 17.

In all but one comparison (11 versus 6 for rationed consumers) the differences are in the predicted direction.

TABLE 17

ESTIMATED FINANCE-RATE and MONTHLY-PAYMENT ELASTICITY of DEMAND for HOUSEHOLDS CLASSIFIED as RATIONED or UNRATIONED on the BASIS of FAMILY INCOME and MARITAL STATUS

Variant Numbers	Rationed	Unrationed
	Monthly-Payment Elasticities	
10-11	-.152	+.150
11-14	-.334	-.420
10-14	-.231	-.083
	Finance-Rate Elasticities	
8-6	-.029	-.099
9-12	-.048	+.116
14-15	-.120	-.235
13-16	-.044	-.068
Average of four	-.060	-.072
Direction of Change:		
Rates Increase		
Payments Fall		
From 10 to 6	+2.9	-9.2
From 10 to 15	+4.6	-7.9
From 11 to 6	-1.5	-5.0
From 11 to 15	+0.2	-4.6

SOURCE: F. T. Juster and R.P. Shay, loc. cit., p.35-6.

However, as the surveyors point out,[1] the comparisons involving variant 10 should provide more consistent evidence than those involving variant 11, since the magnitude of the difference in payments is greater and comparisons here show noticeable differences in the predicted direction. We may thus regard these results as strong evidence in support of our prediction that the response of rationed units to changes in finance rates is likely to be relatively weak while their response to minimum monthly payments is relatively strong, conversely for unrationed consumers.

Further evidence supporting our predictions, although not as strong as the above, is given by the findings of Juster and Shay (Table 18) when they classified the units in their sample into rationed and unrationed units on the basis of liquid asset holdings. The arbitrary division level of liquid assets[2] was taken to be $2,000; those units with holdings less than $2,000 were considered as rationed, while those with greater than that amount were considered as unrationed. However, the findings obtained by using this method of classifying units may not be a good test of our predictions, because of the small size of the rationed group[3], and the consequent sampling errors.

On the whole, the results of this study offer considerable evidence in support of our hypothesis. One important

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[1] Ibid., p. 36

[2] Liquid assets being defined as checking accounts, savings accounts, and savings bonds.

[3] Ibid., p. 37

TABLE 18

ESTIMATED FINANCE-RATE and MONTHLY-PAYMENT ELASTICITY of DEMAND for HOUSEHOLDS CLASSIFIED as RATIONED or UNRATIONED on the BASIS of LIQUID ASSET HOLDINGS.

Variant Numbers	Rationed	Unrationed
	Monthly-Payment Elasticities	
10-11	+.054	-.114
11-14	-.155	-.376
10-14	-.032	-.226
	Finance-Rate Elastcities	
8-6	+.027	-.051
9-12	-.091	-.029
14-15	-.014	-.253
13-16	+.030	-.080
Average of four	-.012	-.103
Direction of Change:		
Rates Increase		
Payments Fall		
From 10 to 6	+0.3	-7.1
From 10 to 15	+0.8	-2.6
From 11 to 6	+1.9	-10.5
From 11 to 15	+2.4	-6.0

SOURCE: F. T. Juster and R.P. Shay, loc. cit., p.38-9.

implication arising from this is the necessity of qualifying
the widely held view that consumer borrowing decisions are
unresponsive to changes in finance charges, aside from the
effects these changes in the level of charges have on monthly
payments; for it appears from the study, that the only units
to which this applies are those who are rationed in the amount
of credit they can employ. It should be noted that this find-
ing is capable of explaining the apparently contrary results
of earlier empirical work, showing that consumer demand for
credit is unresponsive to variations in charges, while appear-
ing significantly related to the average size of the monthly
payments on instalment contracts.[1] If the samples examined
in earlier studies contained, as is highly likely, a large
proportion of rationed units, the overall findings would
reflect their insensitivity to the level of finance charges
and thus cause the author to draw a false conclusion. Note
that in the sample drawn by Juster and Shay, 60 per cent of
the credit users were in the rationed category when the method
of classification used was on the basis of income and marital
status.[2] If a similar classification were applied to the U.S.

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[1]
a. D.B. Suits, "The Demand for New Automobiles in
the United States 1929 - 1956", Review of Economics and
Statistics (Aug. 1958) p. 273.

b. M. Nerlove, "A Staff Memo on Dr. Suits' Testimony,"
Headings before Senate Subcommittee on Antitrust and Monopoly
(85th Cong., 2nd sess., on S. Res. 57 and S. Res. 231, Adminis-
tered Prices, Part 7) Appendix pp. 3998 - 3999.

c. A. Kisselhoff, Factors Affecting the Demand for
Consumer Instalment Sales Credit, (Technical Paper 7, New
York, N.B.E.R., 1952)

d. G.Haberler, loc. cit.,

[2]F.T. Juster and R.P. Shay, loc. cit., p. 34

population as a whole, it would most probably put a consider-
ably higher fraction into the rational category.

The main policy implication from the above findings
is that, if the government wishes to control the major prop-
ortion of credit demand, it must use selective controls affect-
ing the maturity of contracts. In other words, they would be
influencing the amount of credit that the rationed units
(i.e., mainly young single units and recently married units)
can carry at any one time. Note from Table 16 that these
units, between them, accounted for approximately 65 per cent
of debt holdings in 1963. It was possibly because of the fact
that such a large percentage of credit units fall into the
rationed category, that the wartime control of consumer credit
through Regulation W[1] was so effective. However, an examination
of the units affected by such selective controls indicates that,
if the government attempted to contract the demand for credit
by shortening the repayment period, the welfare consequences
could be unfavorable. Such controls are not going to greatly
reduce the debt burden on the younger units, but rather slow
the pace at which they will be able to acquire the necessary

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[1]Regulation W was the wartime method used by the U.S.
to control the volume of consumer credit. It controlled
volume by regulating credit terms (down payment and maturities)
rather than finance charges. The argument behind its use was
that high down payments were expected to deter purchases by
consumers who were unable or unwilling to sacrifice liquidity.
Shorter maturities would also be a deterent because of the
resulting increase in the size of the monthly payment.

durables. This could be detrimental, because it would affect those units whose demands are urgent.

The second, and possibly more important policy implication from the analysis is that the authorities, by influencing the level of finance charge made on loans, are able to have a marked influence on total credit demand. For example, by raising the market rate of interest, or by direct regulation, the government could raise the finance charge and thus cause a cutback in the demand for credit from unrationed units, without the undesirable welfare implication of the above maturity methods of regulation. However, with the use of this policy instrument, it is possible that the change in charges would have to be considerable to induce a significant reduction in the demand for credit. At the same time, there is no guarantee that the units affected would, in fact, postpone their purchase or use accumulated reserves instead - in which case, a government policy, endeavoring to decrease aggregate demand, would be frustrated.

Therefore, the overall policy implication is that, if the government wishes to increase aggregate demand, it should employ selective controls which permit the lengthening of the repayment periods, as this could induce the latent demand of rationed units to become effective. On the other hand, if they require a fall in the demand for credit, they would be better advised to use methods which would increase the finance charges. However, if a significant and quick reduction in credit demand is required, then the government should employ instruments to shorten the repayment period, while, at the same

time, raising the finance charges.

On the basis of the claim by Juster and Shay, that there has been a shift of borrowers from the rationed to the unrationed category over the past several decades which will likely continue in the future,[1] it appears that policy instruments working through the cost of credit will have a greater effect in the future. The reasons behind their expectations that the shift will continue are; firstly, the tendency for lenders to lengthen maturities for the same quality of borrower; and secondly, the secular growth of incomes and wealth.

"On both counts, we may expect consumers to be relatively more responsive to variations in finance rates in the future than at present, and also to be more responsive at present than they had been in earlier decades."[2] With the number of consumers in the unrationed category growing, the usefulness of finance charges, in influencing consumer borrowing decisions on credit contracts of different maturities, will become greater.

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[1] F.T. Juster and R. P. Shay, loc. cit., p. 46.

[2] F.T. Juster and R. P. Shay, loc. cit., p. 46. The authors note the possibility that increased responsiveness could be offset to the extent that consumer wants expand with rising incomes, wealth, and access to credit.

PART III

CHAPTER VII

THE LEVEL OF INSTALMENT CREDIT AN ECONOMY

IS ABLE TO CARRY

A second policy implication arising from the findings

in Part I concerns the level and growth rate of instalment debt

that an economy is able to maintain without generating any

undesirable consequences. This implication is important be-

cause many economists in recent years, especially during the

mid-fifties, have expressed concern over the amount of debt

owed by households in the U.S. and have suggested that govern-

ment action should be taken to curb its future rapid growth.

For example, in 1956 the view was expressed by H. M. Groves

that:

"----the economic gain of 1955 included 'borrowed
prosperity' supported by an acceleration of consumers' credit
(and therefore money supply) that could not be maintained.
A rise in consumers' credit so out of proportion to the rise
in national product must eventually overburden the consumers'
budget with required payments."[1]

Furthermore, in the same year Burck and Parker predicted with

alarm that:

"Consumer short-term debt, perhaps the most controversial
force in the booming U.S. Economy, is approaching a historical
turning point. Having risen at an abnormally fast rate for ten
years, it must soon adjust itself to the nation's capacity for
going into hock, which is not limitless. Whether the rate of
growth in consumer debt will slow down is no longer the ques-
tion; -------- it must slow down."[2]

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[1] H.M. Groves, "The Economics of Eisenhower: A Symposium"
Review of Economic Statistics XXXVIII (Nov. 1956) p. 378.

[2] G. Burck and S. Parker, "The Coming Turn in Consumer
Credit", Fortune LIII (Mar. 1956) pp. 99-102 and pp. 240-245.

On closer examination, it appears that the pessimistic outlook of the above economists resulted from projections they made, based on the position and behavior of the average spending unit. For example, if the stock of instalment debt outstanding is equal to 10 per cent of current national income, they assume, implicitly, that each income recipient is in debt by an amount approximately equal to one-tenth of his income. Now the concern of these economists comes from their extrapolations of the post-war rates of growth in instalment debt and income. Over the period 1945 to 1956 (in the U.S.), money income grew at an average rate of about 6 per cent each year, while instalment debt grew at an average annual rate slightly exceeding 26 per cent. Upon extrapolating these results, the economists feared that at some point in the foreseeable future (whether the critical ratio of debt to personal income be a fifth or a half) consumers would be so immersed in debt, that they would consider future increases in the ratio of debt to income, intolerable. At this point, since they are all in debt by approximately the same amount in relation to their incomes, consumers will curtail their durable-goods purchases. Presumably it was considered that the ensuing recession in the consumer - durables industries would then be transmitted, via multiplier and accelerator effects, to the rest of the economy.

When we come to look at the future debt levels on the basis of our claim that the use of instalment debt is correlated with position in the life-cycle, a slightly different result seems possible from the one predicted above. Our

analysis suggests the important points, that borrowing tends to be concentrated in a particular lifetime stage, and that most borrowing is done during any year by spending units who begin the year with only small debts. The model does allow the possibility, as mentioned previously, that the existence of outstanding debt for any individual unit during its stage of eligibility for borrowing may be said to act as an absolute deterrent to future borrowing. However, for the economy as a whole, the outstanding stock of debt does not act as a deterrent to new borrowing and to the purchase of durable goods, because the class of eligible borrowers is being constantly replenished at an increasing rate. This is the essential difference between the simple model employed by the above economists in reaching their conclusions and our more realistic life-cycle approach. In the former, their reasoning assumed that new borrowing must be done by people who are already in debt, and hence the stock of debt may act as a deterrent to further borrowing. However, if our model is valid, then because of the continual change of units using credit, the inhibiting effect of accumulated debt will not be as strong as they predicted.

Thus the fact, that at any given time some sections of the population are heavily in debt, does not imply that the rate of sales of durable goods must soon decline. Each year, with the formation of new families and the birth of children, new potential borrowers step up regularly to fill the places of those borrowers who may have become debt-saturated. Thus

the debt rotates through the population. Units recently married
typically borrow, while those units in their forties pay off
their debts and accumulate financial assets which are, directly
or indirectly, the debts of the debtors. Sales of durable
goods are sustained by those units who are relatively debt free,
and as they purchase durables and go into debt, their places in
the ranks of the debt-free are taken by others.

APPENDIX

PREDICTION

To make satisfactory predictions, Duesenberry[1] points out that it is necessary to determine those relations, between a certain set of variables which is unaffected by changes in some other variables. Now, if an invariant relation holds between variables associated with individual spending units, then a corresponding invariant relation must hold among some function of all the spending unit variables of the same kind, i.e., if we can write $y_i = f_i(x_i)$ for every unit (where x_i and y_i are variables applying to the ith household), then we are able to write $\emptyset(x_1, x_2, \text{----}, x_n; y_1, y_2, \text{----}, y_n) = 0$. Invariance of the second relation depends on the invariance of the first, and in some cases on the constancy of the distribution of the x's. Such aggregate relations deduced from household relations, Duesenberry designated as fundamental aggregate relations.

Taking a pair of such fundamental aggregate relations:

1) $\emptyset_1(x_1, x_2, \text{----}, x_n) = K_1(y_1, y_2, \text{----}, y_n)$

2) $\emptyset_2(x_1, x_2, \text{----}, x_n) = K_2(z_1, z_2, \text{----}, z_n)$

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[1] J.S. Duesenberry, "Income-Consumption Relations and Their Implications", in Income, Employment and Public Policy: Essays in Honor of Alvin Hansen, (1948), pp. 54-81.

where the x's are exogenous variables, it is clear that a

further relation

$$3) \quad x_1(y_1, y_2, \text{----}, y_n) = x_2(z_1, z_2, \text{----}, z_n)$$

may be derived from the first two. Such a relation Duesenberry

called a derived relation.

"Now suppose that we observe the historical invariance
of the relation (3) and conclude that it is a fundamental
relation. We might then conclude that by changing the z's we
could manipulate the y's. But we might find instead that we
had merely invalidated the relation (2) without having any
effect at all on the y's or x's. Derived relations like (3)
may break down as a consequence of policy changes or of struct-
ural changes in the economy. In addition there is an important
class of derived relations which are likely to hold good only
during the course of a single trade cycle."[1]

The following is a hypothetical example of this second type of

derived relation. Consider the case where a certain variable

z may be partly dependent on the level of unemployment. Within

the course of a single trade cycle, income is very closely

associated with the level of unemployment. If we have data

covering only a single trade cycle, we might conclude from the

empirical evidence that z is determined by income. Actually we

have a derived relation between z and income, which is bound

to break up because the upward trend in income will ultimately

change the association between income and employment. It is

clear from these consideration, that many of the relations

observed empirically, may be only derived relations which will

break down because of a structural change in one of the fund-

amental relations upon which they are based. The difficulty

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[1] Ibid., p. 58

in making accurate predictions is to distinguish between these two kinds of relations.

Now, the difficulties that we have been discussing arise because of the existence of derived relations among aggregate variables. But, ordinarily, such derived relations will not hold for individual firms or households. This suggests that in making predictions, we ought to first examine the behavior of individual firms or households, even when we are only interested in aggregate results.
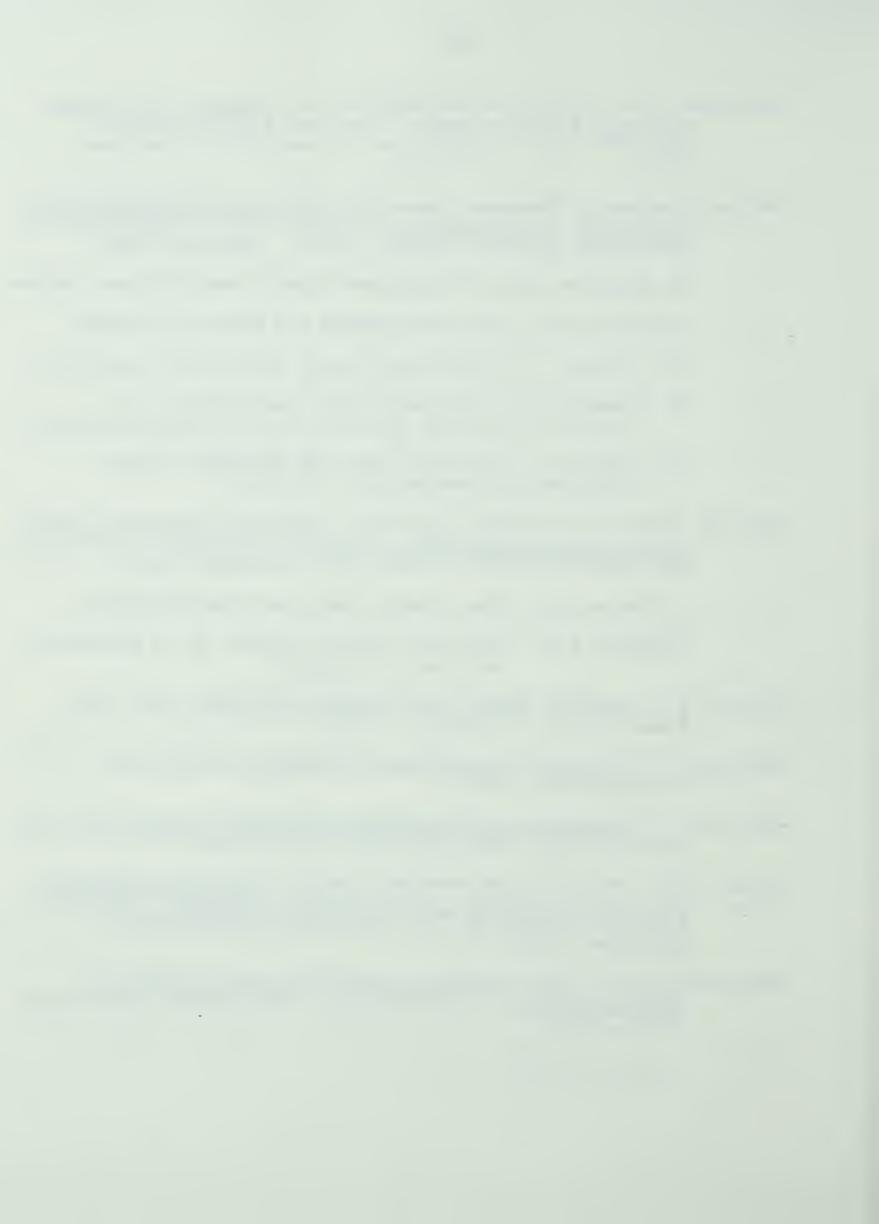
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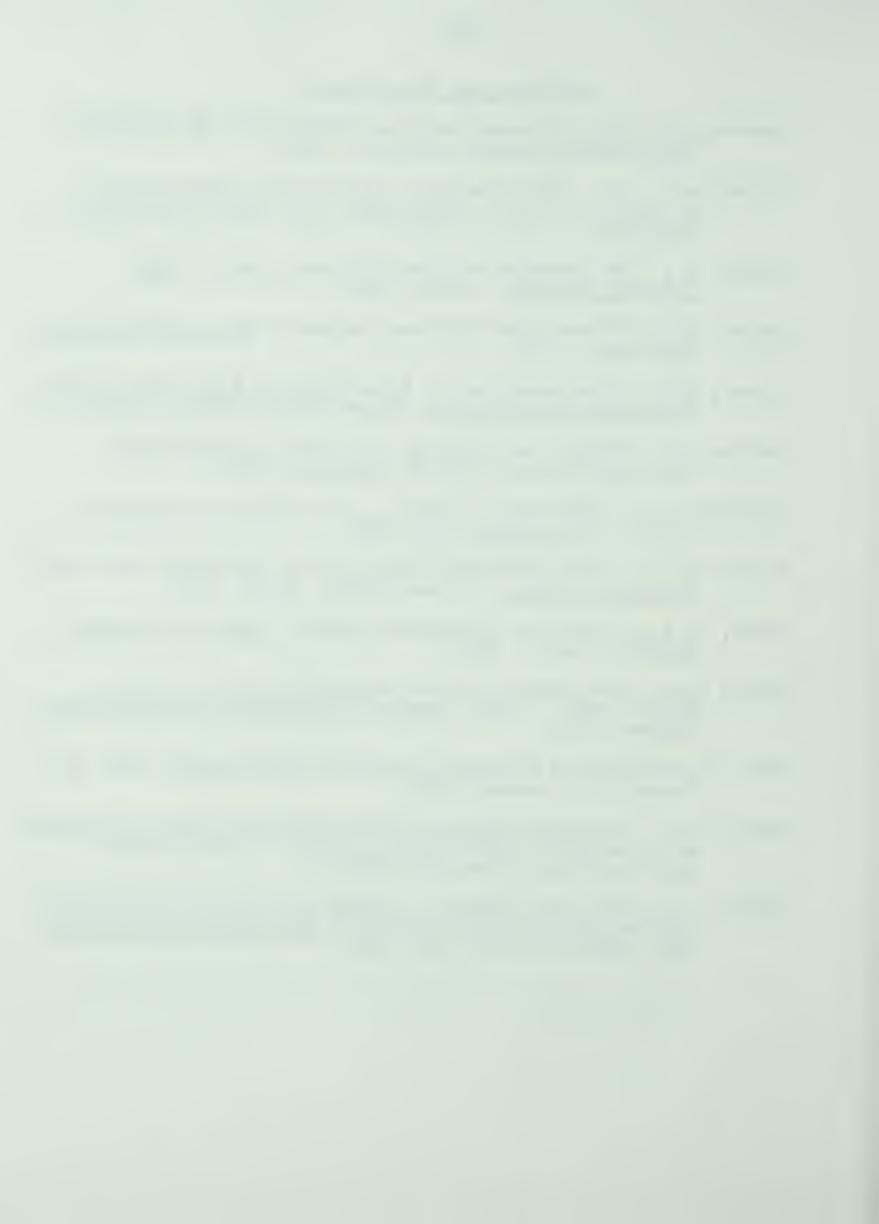Instalment Sales Credit, Technical Paper 7, (New York:
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